

AD _____

CONTRACT NUMBER DAMD17-96-C-6091

TITLE: CD-ROM Technology to Increase Appropriate Self-Care and Preventive Behaviors Among Army and Navy Women

PRINCIPAL INVESTIGATOR: Nancy L. Atkinson, Ph.D.

CONTRACTING ORGANIZATION: Macro International, Incorporated
Calverton, Maryland 20705

REPORT DATE: October 1998

TYPE OF REPORT: Annual

PREPARED FOR: Commander
U.S. Army Medical Research and Materiel Command
Fort Detrick, Frederick, Maryland 21702-5012

DISTRIBUTION STATEMENT: Approved for public release;
distribution unlimited

The views, opinions and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision unless so designated by other documentation.

DTIC QUALITY INSPECTED 4

19990510 051

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE October 1998	3. REPORT TYPE AND DATES COVERED Annual (30 Sep 97 - 29 Sep 98)	
4. TITLE AND SUBTITLE CD-ROM Technology to Increase Appropriate Self-Care and Preventive Behaviors Among Army and Navy Women			5. FUNDING NUMBERS DAMD17-96-C-6091	
6. AUTHOR(S) Nancy L. Atkinson, Ph.D.				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Macro International, Incorporated Calverton, Maryland 20705			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Commander U.S. Army Medical Research and Materiel Command Fort Detrick, Frederick, Maryland 21702-5012			10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution unlimited			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200) The purpose of this report is to report the results of the second year of a four-year study to investigate and address enlisted Army and Navy women's needs for basic gynecological and reproductive health education in order to enhance military readiness and general well-being. In the first phase of the study, a needs assessment was begun in which the methods included: 1) a mail survey of knowledge, attitudes, and practices (KAP) from a random sample of Army and Navy clinicians and chiefs of military medical departments; and 2) focus groups with enlisted Army and Navy women and with their health care providers. This second year focused on developing the focus group guides, updating literature review, beginning a secondary analysis of a national survey of military personnel health related behaviors, and obtaining approval for a cross service survey from the Defense Manpower Data Center. Based on the results of the needs assessment, a culturally sensitive, multimedia CD-ROM and accompanying materials will be developed with the help of an advisory panel of military health care providers and with periodic reviews by the target audience. This intervention will then be tested in Army and Navy medical clinics in conjunction with annual Pap test screening.				
14. SUBJECT TERMS Defense Women's Health Research Program CD-ROM, Self-care, Prevention, Gynecology, STDs, Pregnancy, Hygiene			15. NUMBER OF PAGES 129	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT Unlimited	

FOREWORD

Opinions, interpretations, conclusions and recommendations are those of the author and are not necessarily endorsed by the U.S. Army.

____ Where copyrighted material is quoted, permission has been obtained to use such material.

____ Where material from documents designated for limited distribution is quoted, permission has been obtained to use the material.

____ Citations of commercial organizations and trade names in this report do not constitute an official Department of Army endorsement or approval of the products or services of these organizations.

____ In conducting research using animals, the investigator(s) adhered to the "Guide for the Care and Use of Laboratory Animals," prepared by the Committee on Care and use of Laboratory Animals of the Institute of Laboratory Resources, national Research Council (NIH Publication No. 86-23, Revised 1985).

na ____ For the protection of human subjects, the investigator(s) adhered to policies of applicable Federal Law 45 CFR 46.

____ In conducting research utilizing recombinant DNA technology, the investigator(s) adhered to current guidelines promulgated by the National Institutes of Health.

____ In the conduct of research utilizing recombinant DNA, the investigator(s) adhered to the NIH Guidelines for Research Involving Recombinant DNA Molecules.

____ In the conduct of research involving hazardous organisms, the investigator(s) adhered to the CDC-NIH Guide for Biosafety in Microbiological and Biomedical Laboratories.

Nancy Atkinson 9/30/98

PI - Signature Date

Table of Contents

<u>Section</u>	<u>Page</u>
Foreword	3
Table of Contents	4
I. Introduction	5
II. Body: Project Progress	6
Experimental Methods and Procedures	6
Results	9
Discussion	25
III. Conclusions	28
Appendix A Focus Group Guide: Enlisted Army Women	
Appendix B Focus Group Guide: Enlisted Navy Women	
Appendix C Focus Group Guide: Army Clinicians	
Appendix D Focus Group Guide: Navy Clinicians	
Appendix E Military Clinician Needs Assessment Survey	
Appendix F Military Chairperson Needs Assessment Survey	
Appendix G Updated Literature Review	
Appendix H Focus Group Report: Fort Bragg	

I. Introduction

The project "CD-ROM Technology to Increase Appropriate Self-Care and Preventive Behaviors Among Army and Navy Women" was initiated as a way to study and address the reproductive health education needs of enlisted Army and Navy women. Not only is the ability of each female soldier to protect and control her reproductive health essential to military readiness, it is important for these women's quality of life.

The purpose of the study is to investigate enlisted women's needs for basic gynecological and reproductive health education, from the perspective of military health care providers and enlisted women themselves. Based on the results of the needs assessment, a culturally sensitive, multimedia CD-ROM and accompanying materials will be developed. This intervention will then be tested in Army and Navy medical clinics in conjunction with annual Pap test screening.

This report describes the second year of operation of the project, which began in September 1996. The project is a four year study with three distinct phases: a needs assessment phase, a design phase, and an efficacy study phase. The first year was to include the needs assessment phase and the beginning of the application design. Due to delays in questionnaire design and human subjects approval that continued past the first year, the needs assessment phase is still in operation.

The previous work for this project included a literature review, review of Institute of Medicine recommendations for Defense Women's Health, and discussions with military and medical personnel. This work was the basis of the proposal submitted to the U.S. Army Medical Research and Materiel Command. In the first year of the project, we conducted an expert panel meeting, developed and pilot tested survey instruments for the needs assessment, and completed IRB review by Macro International.

In the second year of the project, we have updated our literature review, finalized focus group interview guides, and completed survey approval through Department of Defense Health Affairs and the Defense Manpower Data Center. We have developed partnerships with co-investigators from two Army bases and two Navy bases for conduct of the needs assessment focus groups. Two sets of focus groups have been completed at the time of this report. We have also developed an analysis plan for a secondary analysis of the 1995 Department of Defense Survey of Health Related Behaviors Among Military Personnel to determine the health risk behaviors and intervention points for enlisted Army and Navy women. In addition, COL Joan Eitzen, the Director of Health Promotion and Wellness at the Army's Center for Health Promotion and Preventive Medicine, has been added as a Co-Principal Investigator for the project. This report will summarize these activities and our future task timeline.

II. Body: Project Progress

The experimental methods and procedures reported here represent an amalgamation of methods originally proposed and those which resulted from recommendations of representatives from our expert panel and human use committees as well as guidance from DOD Health Affairs, the Defense Manpower Data Center, and the Clinical & Program Policy division of Health Affairs.

A. Experimental Methods and Procedures

The purpose of the study is to investigate enlisted women's needs for basic gynecological and reproductive health education, as evidenced by a needs assessment process to be conducted with military health care providers and enlisted women themselves. Based on the results of the needs assessment, a culturally sensitive, multimedia CD-ROM and accompanying materials will be tested in an Army and Navy medical clinic in conjunction with annual Pap test screening. The technical objectives are as follows:

- 1) To assess the most pressing reproductive and gynecological self-care education needs of enlisted women on base and in the field;
- 2) To assess the range of current health education efforts for enlisted women;
- 3) To enhance enlisted women's self-care and care-seeking knowledge and practices through development and implementation of a culturally sensitive, multimedia educational intervention and accompanying field pocket guide at a medical clinic.

The study originally involved 4 data gathering activities that involved human subjects:

- 1) Needs assessment mail surveys conducted with nationally representative samples of enlisted women in the Army and Navy (N=500), military health care providers (n=260), and chairpersons of military base OB/GYN services (N=160);
- 2) Needs assessment focus groups with enlisted women in the Army and Navy (N=40) and military health care providers (N=20);
- 3) Alpha Test of prototype intervention with 10 enlisted women at the Uniformed Services University of the Health Sciences (USUHS); and
- 4) Efficacy Study in which 528 enlisted women (264 from the Army and 264 from the Navy) complete a knowledge, attitudes, and practices (KAP survey) before the intervention, immediately after the intervention, at 6 month follow up, and at 12 month follow up.

The study now involves 5 data gathering activities. The needs assessment survey was replaced by a secondary analysis of the 1995 Department of Defense Survey of Health Related Behaviors Among Military Personnel to determine to the effect of health-related attitudes and behaviors on enlisted women's history of sexually transmitted diseases (STDs), Pap test screening, and pregnancy. No human subjects will be involved in this activity. In addition, the focus groups were modified to gather data from more participants. Instead of 40 enlisted women and 20 clinicians, the study will include focus groups with 80 enlisted women, 40 physicians, and 40 nurse practitioners and physician assistants.

The sections below describe the procedures employed in the literature review (Appendix G), the focus groups, the needs assessment surveys, and the secondary analysis. The findings are in the following section.

1. Literature Review Update

The original proposal was written in 1995. Given that other Defense Women's Health Initiative projects and other program efforts have taken place since then, we revised the literature review written in the proposal. Issues about reproductive health and health education were expanded to help guide our efforts while the needs assessment studies have been going through approval procedures.

A review of publicly available military and civilian literature was conducted through the following sources:

- Defense Technical Information Center
- Alan Guttmacher Institute
- Planned Parenthood of the U.S.A.
- Naval Health Research Center, San Diego, CA.
- Medline
- DefenseLink – Government Information Locator Service
- Office of the Under Secretary of Defense for Personnel and Readiness
- U.S. DoD Office of the Assistant Secretary of Defense for Health Affairs
- National Women's Health Information Center
- Defense Women's Health Information Center
- American Medical Association
- Centers for Disease Control and Prevention
- Institute of Medicine
- Specific journals, such as Military Medicine, Women's Health Issues
- Research Triangle Institute
- HealthWeb
- Newsletters, such as Women's Health Weekly
- U.S. Army Medical Research & Materiel Command
- DoD Women's Health Research Program
- U.S. Army Research Institute of Environmental Medicine
- Defense Manpower Data Center
- U.S. Army Center for Health Promotion & Preventive Medicine
- Navy Bureau of Medicine and Surgery

2. Focus Groups

Our initial scope of work included 4 focus groups with enlisted women and 4 focus groups with their military health care providers (physicians only). Since then, we were advised to conduct a secondary analysis of an existing dataset rather than conduct a new survey of enlisted women (see below). In addition, our advisory panel recommended including input from nurse practitioners and physician assistants who provide much of the direct health care for enlisted women. Therefore, we modified

our scope of work to include more focus groups with women and a broader range of military clinicians to ensure that attitudes and beliefs related to reproductive health behavior are examined (a total of 8 groups with enlisted women, 4 groups with physicians, and 4 groups with nurse practitioners and physician assistants).

The sixteen focus groups will be conducted at 2 Army installations (Fort Bragg and Fort Lewis) and 2 Navy installations (Naval Station San Diego, Naval Station Norfolk). The groups will be approximately 90-minutes long with approximately 10 people each. We will work with a co-investigator at the installation to recruit focus group participants.

The focus groups will be led by a trained focus group moderator and will cover a range of issues. The focus group guides were developed using a similar process of initial development based on the goals and objectives of the project, expert panel review, and revision. The guides were written so that no identifying information would be taken from participants, and participants were not asked about their own behavior. The guides were submitted to IRB review for human subject concerns. The focus group for enlisted Army women is in Appendix A, for enlisted Navy women is in Appendix B, for Army clinicians is in Appendix C, and for Navy clinicians is in Appendix D.

3. Needs Assessment Surveys

The plans for the needs assessment surveys of military clinicians and chairpersons have not changed since the 1997 annual report. Because of clearance procedures involved in DoD Instruction 1100.13, "Surveys of DoD Personnel," the surveys have not yet been fielded. The surveys were modified in response to reviews by DoD Health Affairs and the Defense Manpower Data Center. The surveys were assigned a Report Control Symbol on September 15, 1998. The approved surveys are in Appendix E (clinician survey) and Appendix F (chairperson survey).

4. Secondary Analysis of 1995 Department of Defense Survey of Health Related Behaviors Among Military Personnel

We have prepared a plan for conducting a secondary analysis of the 1995 Department of Defense Survey of Health Related Behaviors Among Military Personnel, focusing on questions related to sexual risk behavior, alcohol consumption, stress factors, military health education, and other factors related to reproductive health. In general, these factors will be examined as to their effect on enlisted women's history of sexually transmitted diseases (STDs), Pap test screening, and pregnancy.

Sample Characteristics:

- Univariate analysis of individual items (means, standard deviations)
- Bivariate analysis (crosstabs, correlations, t-tests) to examine relationships among variables and look for significant difference between enlisted women and female officers and between enlisted women in the Army and the Navy

Technical Objectives from Original Proposal Related to the Needs Assessment:

- 1) To assess the most pressing reproductive and gynecological self-care education needs of enlisted women on base and in the field.

In order to address this first technical objective, the secondary analysis will examine which factors are most related to reproductive health problems using a discriminant analysis strategy with each of the dependent variables (STD history, Pap test screening, and prior pregnancy).

- 2) To assess the range of current health education efforts for enlisted women.

Items examining attitudes toward military health education programs (i.e., alcohol education program, drug education, and STD education) will be analyzed to determine if they are perceived to be effective by enlisted Army and Navy women. Differences by service, pay grade, and region will be examined as well.

Because the secondary analysis does not involve primary data collection, no human subjects were involved in the study. Therefore, the analysis was determined to be exempt.

B. Assumptions

The principal assumptions for the current project have not changed:

1. Following human subject and other clearances, the project would begin with a needs assessment that included attention to service women and health services personnel, both clinicians and their administrators.
2. A multimedia CD-ROM could be used to address the health education needs of military women, and use of a CD-ROM would be possible in military settings.

These broad assumptions guided the development of the strategies outlined in the original survey and clarified during the first year of project operation.

C. Results

This section is a detailing of year one activities and results. It is not yet a final project report with a full listing of project outcomes. Table 1 lists the major activities of the first project year in terms of the two tasks outlined in the original proposal.

Table 1: Major Activities of the Second Project Year		
Task	Description	Months of Performance
5	Literature review update	1-6
2	DoD Health Affairs review of enlisted women's needs assessment survey	1-3
2	DoD Health Affairs and DMDC review of needs assessment surveys for clinicians and chiefs of service	1-12
2	Change in work scope: Replacing enlisted women's survey with secondary analysis of 1995 DoD Health Behavior Survey	4-6
2	Macro IRB review of secondary analysis protocol	5
2	Macro IRB review of focus group protocols	6
2	USAMRAA Human Use and Regulatory Affairs clearance for involving human subjects in research (needs assessment surveys and focus groups)	7
3	Preliminary secondary analysis	7-12
3	Development of databases of military clinicians and chiefs of service for needs assessment surveys	7-9
2	IRB process for focus groups at Army and Navy sites	8-12
3	Focus groups at Fort Bragg/Womack with enlisted Army women and military clinicians	9
3	Focus groups at Fort Lewis/Madigan with enlisted Army women and military clinicians	12

1. Literature Review

The literature review was updated to reflect new findings on reproductive health among enlisted women. The full literature review is contained in Appendix G. The following are key findings from the literature review:

Demographics

- ▶ According to recruiting projections, the percentage of active duty military women is expected to grow as high as 20 percent in the near future. Today, women make up a substantial part of units deployed for peacekeeping and humanitarian aid missions.

- ▶ As of 1997, the Army had the highest proportion of female enlisted personnel, compared to the other branches of the U.S. military.
- ▶ Among active duty women, health care and supply/administration are the dominant types of occupations. With the repeal of the combat exclusion law in 1994, women serve in all units of the military except combat branches such as armor, infantry, and special forces
- ▶ Military women are generally young; across all four branches, nearly half or more are under the age of 26.
- ▶ Compared to the civilian population, the military has larger proportions of minority women; 53 percent of Army women and 39 percent of Navy women were from minority groups.

General Health

- ▶ Due to the high health and fitness standards for entrance and retention in the military, active duty women are generally healthier than those in the general population
- ▶ Health issues for military women are often related to the unusual situations these women face in performing their duties, including: dietary problems, increased vulnerability to injury and environmental stresses, difficulty maintaining gynecological health while deployed in the field, reproductive issues, and psychological stresses unique to women.
- ▶ Since large proportions of active duty women are minorities, and most are under the age of 30, the health issues for military women also overlap with those for minority and younger women. Minority women have higher rates of certain illnesses such as cervical cancer, coronary heart disease, and diabetes mellitus. Minority women and younger women are also at increased risk for STDs.
- ▶ Gynecologic complaints explain most of the extra sick calls and medical leave taken by active duty females, in general and when deployed.

Pregnancy

- ▶ Pregnancy-related conditions have been the most common reason for hospitalization among active duty women.
- ▶ In 1995, rates of pregnancy for Army and Navy women were 17 percent and 16 percent respectively. Estimates of unintentional pregnancy proportions among active duty women who become pregnant is one third to one half, according to different sources.
- ▶ The most frequent cause of premature separation from the military among women is pregnancy and parenthood. Pregnancy is also the number one reason for active duty females being nondeployable.
- ▶ During Operation Desert Storm, pregnancy was the single largest reason for evacuation of

female soldiers from the theater. The majority of these conceptions occurred in country.

- ▶ Pregnant women in the military may also have a difficult time performing their duties, because of weight gain, fatigue, lightheadedness, susceptibility to injuries, nausea and vomiting, and frequency of urination.
- ▶ The most frequent cause of hospitalization of military women is also pregnancy, leading to greater cost to the military in terms of lost salary, reduction in force, and increased medical costs.
- ▶ Active duty pregnant women are at increased risk for poor pregnancy outcome, pregnancy-induced hypertension, intrauterine growth retardation, preterm complications, ectopic pregnancy, and cesarean deliveries. These outcomes may occur because some women are unaware of their condition for some period of time.

Contraception

- ▶ The unintended pregnancy rate among active duty women approximates that of the civilian population even though contraception is available at no cost as part of their medical care.
- ▶ Use of ineffective contraceptive methods and incorrect use of effective methods have been cited as the cause of unintended pregnancy among active duty women.

Sexually Transmitted Diseases (STDs)

- ▶ In a 1995 national survey of health behaviors among military personnel, 25 percent of active duty women in the Navy, Marine Corps, and Air Force reported having had an STD, and 30 percent of Army women reported having had an STD. The DoD survey found that these proportions were higher for female enlisted personnel.
- ▶ While some recent estimates of the prevalence of STDs in the general U.S. population show comparable rates of infection, an HIV review panel meeting held in 1995 concluded that STDs are five times more prevalent in the military than in the civilian populations in peacetime, and 30 times more prevalent during conflict.
- ▶ STDs have a disproportionate impact on women compared to men. Women are also more likely to be asymptomatic for STDs, further increasing the likelihood of health problems.
- ▶ High rates of undiagnosed chlamydia infection among active duty females increase their risk of chronic pelvic pain, upper reproductive tract infections, tubal impairment, infertility, and ectopic pregnancy.
- ▶ Women who contract human papillomavirus, one of the most common viral STDs, can develop condyloma (genital warts) or cervical disease, which could be a precursor to cervical cancer.

- ▶ Although rates of gonorrhea have been shown to be low among some military women, asymptomatic gonorrhea that is not diagnosed and treated can lead to pelvic inflammatory disease and infertility.

Sexual Risk Behaviors

- ▶ In a 1995 national survey, only forty percent of unmarried military personnel who were sexually active reported using a condom the last time they had intercourse
- ▶ Alcohol and drug use are related to high risk sexual behavior such as unprotected intercourse. A study of active duty Army females found that those who drank alcohol were less likely to use condoms and had more sexual partners than those who did not drink.
- ▶ Although alcohol use by military personnel is declining, the percentage of military personnel defined as heavy drinkers is still well above that of their civilian counterparts.
- ▶ Women in the military may experience other factors that weaken their immune systems and place them at greater risk for developing STDs. Women in the military are more likely than civilians to smoke. They are also exposed to external stressors that can reduce their immunity such as changes in housing, sanitation, and meals; adverse weather conditions; exposure to unfamiliar diseases in foreign countries, and exposure to chemical and biological threats.
- ▶ Deployed military personnel may be more likely to engage in behaviors that put them at risk for contracting STDs because they are separated from the support and guidance of family and community while dealing with numerous additional stressors. Military personnel deployed to countries with high STD rates will also be at increased risk for acquiring an STD.

Other Genitourinary Problems

- ▶ Diagnoses of vaginitis and urinary tract infections make up a large proportion of visits to the troop medical clinic and field medical visits.
- ▶ Poor hygiene can lead to vaginal infections. Limited availability of showers makes it difficult for active duty females in the field or aboard ship to maintain good hygiene. Hygiene problems are exacerbated when women are menstruating. Vaginitis (usually caused by candidiasis) is also more common when tight pants are worn, and the battle-dress uniform worn by all Army soldiers has a short crotch.
- ▶ Poor hygiene can also lead to urinary tract infections (UTIs) when certain strains of bacteria are allowed to accumulate in the genitourinary area and are not removed through regular urination. However, military personnel in the field may not have easy access to toilets, and many deployed women have mentioned their discomfort with urinating without a toilet. Lack of private elimination facilities may lead many women in the field to retain their urine for long periods, increasing their chances of bacterial growth within the urinary tract.
- ▶ Dysfunctional Uterine Bleeding (DUB) is another problem common among active duty

women. Atypical bleeding may be due to jet lag, decreased food intake, enhanced energy expenditure, psychological stress, or hormonal changes caused by discontinuing oral contraception. While DUB does not generally affect fertility or overall health, bleeding or cramping may impair a woman's ability to effectively perform her duties, and women might think they are infertile and put themselves at increased risk for unintended pregnancy.

Military Health Care

- ▶ The Armed Forces provide health services free of charge to active duty personnel.
- ▶ All active duty women are required to have pelvic exams, Pap smears and clinical breast examinations during accession physicals. This requirement has led to high rates of Pap screening.
- ▶ Active duty women are not being notified of an abnormal Pap within two weeks of testing, and followup care occurred an average of 59 days after the initial Pap.
- ▶ Active duty women are routinely offered counseling on family planning alternatives.
- ▶ A Quality Management Review (QMR) by the DoD found low rates of STD screening among active duty personnel.
- ▶ While most military women generally report easy access to OB/GYN care, such as pelvic exams or Pap smears, deployed women report lack of knowledge of services or report that gynecological care is unavailable or poor.
- ▶ The majority of military women reported that they were satisfied with their current health care and OB/GYN care. However, nearly half (45% in one study) of military women reported preferring a civilian health care provider.

Military Health Education

- ▶ Many military women are in their late teens or early twenties, putting them at risk for unplanned pregnancy and STD infection. Although most young women in the U.S. have received some type of reproductive health education before the age of 18, the type and amount of education received varies greatly.
- ▶ Although most recruits are exposed to some health information during basic training, this information deals primarily with hygiene issues and First Aid.
- ▶ A small amount of health education material specifically developed for military women deals briefly with reproductive health issues.
- ▶ In general, the type and level of health education received by military women varies by location, from none to fairly extensive, and is not well documented.

- ▶ Recent research indicates that military women want more health education, including classes on STD prevention and contraception.

Recommendations from Previous Studies

- ▶ Women need better training on the importance of pelvic exams.
- ▶ Women need to be aware of increased risk of pregnancy complications during deployment, such as spontaneous abortion and ectopic pregnancy, as well as potential risk to a fetus exposed to chemical agents and/or certain medications.
- ▶ Troops should be educated on how to cope with contraceptive failure (i.e., what to do if a condom breaks, a diaphragm slips, or if unprotected intercourse occurs).
- ▶ Military women need education regarding risk factors for genitourinary infections to prevent these disorders. They also need to know how to recognize symptoms of vaginitis and UTI so that they may obtain prompt treatment and testing.
- ▶ Active duty women need to be able to accurately interpret changes in their menstrual cycles in order to seek appropriate treatment and to recognize that impaired menstruation is not necessarily related to impaired fertility. Women need to be made aware of the importance of continuing birth control during deployment, even if they are temporarily sexually inactive, in order to avoid sudden hormonal changes and disruptions in their menstrual cycle.
- ▶ Women should be given predeployment gynecologic screening that includes a pregnancy test, discussion of contraception, and identification and evaluation of gynecological problems that would affect performance in the field.
- ▶ Effective health promotion should be comprehensive, covering cigarette smoking, alcohol consumption, sleep habits, nutrition, and other topics. Classes on specific topics also should be offered.
- ▶ Health promotion programs offered at a location that is convenient are likely to increase the number of people using these programs. The worksite would be a convenient location for enlisted women.

3. Focus Groups

Focus groups have been conducted at the two Army installations. At the time of this report, the Fort Lewis focus groups were only recently completed, so only preliminary findings are included in this report. The Fort Bragg focus group report is in Appendix H. The focus groups at Naval Station San Diego are scheduled to occur in October 1998. The clearance procedures are still in process at Naval Station Norfolk, so the focus groups there have not yet been scheduled.

The following is a listing of findings from the focus groups at Fort Bragg and Fort Lewis:

General Health

- ▶ Military women believe health is very important because good health is necessary to perform their duties.
- ▶ Soldiers' health is more closely monitored than civilians' health because it is more critical to performance of their jobs. Problems may be identified more quickly in this population.
- ▶ Military women are placed in competition with males and often attempt to "out do" males physically and sexually.
- ▶ Most military women are young (under 25) and inexperienced. Many are away from home for the first time. These situations often lead to poor health decisions and risk taking.
- ▶ Enlisted females appear more interested than enlisted males in their health. They utilize health care more often and express more interest in receiving health education.

Pregnancy

- ▶ Some women get pregnant to avoid deployment or get out of the military. The extent to which this occurs among enlisted women is not clear. Most believe this is a minority of enlisted women but a large enough proportion to be a problem.
- ▶ Pregnant enlisted women are very concerned about how different duty activities and exposures to substances may affect their babies.
- ▶ Many participants estimated that more than half of all pregnancies among enlisted women are unintended.

Contraception

- ▶ The preferred form of contraception among enlisted women is still birth control pills. Weight gain caused by these contraceptives may make it difficult for stockier women to stay within military weight standards, so these women should use low dose birth control pills.
- ▶ More women are requesting Depo Provera because it is difficult to bring adequate supplies of birth control pills into the field, and Depo Provera is more cost effective.
- ▶ More women are also using condoms but fear that they will not be effective, will not feel right, or males will think they are promiscuous for having them.
- ▶ Both women and health care providers prefer to avoid Norplant. Women who have used it have reported menstrual problems, and it is hard to remove.

- ▶ During long term deployment overseas, contraceptives and other medications may be depleted and unavailable.

STDs

- ▶ Most commonly reported STDs by health care providers and enlisted women are chlamydia, HPV or genital warts, and herpes. Other STDs are considered rare.
- ▶ Herpes and chlamydia are perceived to be relatively common among enlisted women. These STDs often go undiagnosed or are misdiagnosed as UTIs or vaginal infections.
- ▶ “STD” clinics or education programs can have a negative stigma attached to them. Some female soldiers are embarrassed to make use of these services on a voluntary basis. Others feel they have greater privacy at an STD clinic because it is in the main hospital rather than in the troop medical clinic.
- ▶ Many health care providers want to screen soldiers for STDs herpes more often. Some believe screening should be routine, especially among females because they experience fewer symptoms and more long term complications.
- ▶ Both health care providers and enlisted women estimated lifetime STD infection among enlisted women to range from 40 to 90 percent. Most estimated closer for 40 percent.
- ▶ The reported STD infection rate of 27.8 percent among army women seems low to many participants. Health care providers indicated that STDs are often unreported and undiagnosed, particularly among young, single women who make up the largest proportion of enlisted women.
- ▶ Many soldiers mistake UTIs and vaginal infections for STDs.
- ▶ Military health care providers need to identify partners of soldiers infected with STDs and treat them also to avoid reinfection. Partners are usually other soldiers. Nonmilitary partners usually cannot be treated by military physicians because of liability issues.

Vaginal Infections and UTIs

- ▶ Vaginal infections and UTIs are common in the field because of poor hygiene.
- ▶ Women get vaginal infections and UTIs in the field, in part, because they do not urinate or clean the genital area frequently because of a shortage of clean, private, accessible elimination facilities.

Hygiene Issues

- ▶ Units with more women in them are more likely to have access to showers in the field. Women in predominantly male units may not be able to shower at all, in the field.

- ▶ Few products necessary for maintaining basic feminine hygiene are included in field packs or available in the field. Women need to know what to bring and how much, particularly since supplies included in field packs are often inadequate.
- ▶ Some installations provide a list to women of products they may need to bring into the field. Women can also go to the PX during breaks from local field exercises.
- ▶ Women often use baby wipes to clean themselves in the field. Many women report that this is an inadequate way to maintain hygiene.

Military Health Care

- ▶ Follow up visits for abnormal Pap tests often take up to several months. Many women with abnormal Pap tests may not receive follow up care, particularly if they are deployed.
- ▶ Many enlisted women, particularly those with less time in the military or at a post, are unaware of the health care services available to them.
- ▶ Many enlisted women report that their duties and working through the chain of command interfere with their obtaining reproductive health care and preventive services. Many also reported that NCOs attach a negative stigma to soldier's sick call visits, viewing them as signs of weakness or attempts to escape duties. Many commanders question female soldiers about reasons for sick call, which may embarrass them and discourage them from obtaining health care for sensitive, reproductive health concerns.
- ▶ Most enlisted women and their health care providers do not report that enlisted women feel uncomfortable speaking to military health care providers about their reproductive health issues. Some enlisted females mentioned a greater comfort level with female health care providers.
- ▶ The most frequently reported barrier to enlisted women discussing their reproductive health concerns with providers is lack of confidentiality. There is often little privacy at sick call and other soldiers in the clinic can hear any discussion that takes place between patient and provider. Reportedly, medics also have access to and may review medical records of soldiers, both male and female. Some medics have reportedly shared confidential health information on enlisted females with male soldiers.
- ▶ Another important barrier to patient/provider communication is lack of time. During sick call, soldiers are often rushed through visits.
- ▶ Soldiers can make appointments for counseling on reproductive and other health issues, but seldom do this unless they are experiencing serious health problems.
- ▶ Soldiers tend to prefer care in the medical centers whenever possible because of the level of care and the increased privacy (e.g. not connected to their command).

Military Health Education

- ▶ Most enlisted women report receiving minimal education about their reproductive health in basic training.
- ▶ Reproductive health education materials are widely available at military health care centers.
- ▶ TriCare mails information on reproductive health to all married soldiers. Single soldiers receive nothing similar. Some health care providers suggested that this information be made available at the barracks.
- ▶ There are few central health education locations at installations except for the hospital.
- ▶ Anonymous hotlines and informational call centers are available to soldiers who know about them.
- ▶ Prior to deployment, women need to know how much contraception to bring (depending on type), the importance of staying hydrated, how to prevent genitourinary infections in the field, what other medications to bring, and how much.

Education Recommendations

- ▶ Content should start with basics of how the female reproductive system works, what affects this system and how, what is normal and abnormal, etc. Many women have knowledge gaps in this area.
- ▶ Women want to know how different medications affect their body and reproductive health, particularly contraceptives and medications they must take for deployment.
- ▶ Enlisted women want to know what questions to ask a provider.
- ▶ They also need to know about contraceptive options, STD symptoms and consequences, what is involved in a Pap test, and why it is done.
- ▶ An adult education format should be used for teaching enlisted women. They will not respond as well to lectures or being “talked down to.” Interactive education that involves decision making activities was suggested by both women and health care providers.
- ▶ Women need reproductive health information in basic training or during processing upon arrival at an installation.
- ▶ Males should be educated about female reproductive health, also. Males also need education on preventing STD transmission and unintended pregnancy in females.
- ▶ NCOs need to be educated and held responsible for the health of the females under their command. They need to be convinced that increased health care and education will improve

readiness.

- ▶ Most participants like the idea of a computer-based education program because of the privacy and interactivity it offers. However, many soldiers have limited access to a computer.
- ▶ At least some portion of the reproductive health education should be mandatory so that all soldiers receive it uniformly and no one is singled out.
- ▶ Experienced, female soldiers can be used to provide information and share experiences.
- ▶ Multiple channels should be used to effectively educate women about their reproductive health.
- ▶ Any education program should be available in the barracks if it is to be used regularly.
- ▶ Regular education is important to ensure retention of information, allow users to explore different areas, and to provide updated information.
- ▶ Visuals should be included. They should have an impact and are current.

3. Needs Assessment Surveys

In complying with DoD clearance guidelines, the last year was spent in gaining human subjects approval and approval from the Defense Manpower Data Center (DMDC) to field a cross service survey. Initially, the conduct of the needs assessment surveys were delayed because of staff turnover at DoD Health Affairs. Our initial contact person was of the opinion that the surveys did not require DMDC review. Our new contact person clarified that a DMDC review was necessary and did everything she could to streamline the review process, which took approximately 6 months. The surveys were determined to have minimal risk, and DoD Health Affairs agreed to sponsor our survey to DMDC. After minor adjustments were made in the instruments, the instruments received a Report Control Symbol in September 1998. Refer to Figure 1 for the task and timeline for instrument development. The instruments are located in Appendix E (clinician survey), and Appendix F (chairperson survey).

Figure 1: Timeline for Receipt of Report Control Symbol from the Defense Manpower Data Center (DMDC)

October 1997:	Surveys sent to DoD Health Affairs and DMDC for review. Suggestion was made that clinician and chief of service surveys would be exempt.
December 1997:	Clinical Services refuses to sponsor enlisted women's survey, stating that information is redundant to information gathered in other surveys. DoD Health Affairs suggests that secondary analysis be conducted instead.
January-April 1998:	Periodic contacts were made to DoD Health Affairs for status of clinician and chief of service surveys. Clinical Services agrees to sponsor the survey and they reviewed it in April 1998. Received instructions to submit package to DMDC in April 1998.
May 1998:	Formulated response to DoD Instruction 1100.13, "Surveys of DoD Personnel." Received Clinical Services review of surveys which are incorporated into response to DoDI 1100.13.
July 1998:	Received written feedback response from DMDC. Revised instruments and materials and resubmitted package. Received second review from DMDC.
August 1998:	Revised instruments and submitted them to DoD Health Affairs. Prepared Form 455 to submit for Report Control Symbol licensing.
September 1998:	Received verbal notification from DoD Health Affairs that Report Control Symbol licensing is imminent.

4. Secondary Analysis

The secondary analysis of the *1995 DoD Survey of Health Related Behaviors Among Military Personnel* is in process and a full report will be written. These findings include preliminary statistics on demographics on the enlisted women in the Army and Navy taking part in the survey. We also include initial discriminant analyses conducted to examine the relationship between demographics, stress-related variables, and behavioral factors and the health issues of interest: pregnancy, STD infection, and Pap test screening. All of the findings on the secondary analysis below are unpublished data.

Demographics

Out of a total of 16,122 respondents, 2,937 were female (18.3%) and 13,165 were male (81.7%). A total of 616 of the women were officers, leaving 2,341 enlisted females in all four branches of the military. Table 2 provides tables showing the demographics of the enlisted female respondents to the 1995 survey that were in the Army and Navy (there were 529 respondents in the Army and 693 in the Navy).

Table 2: Demographic Characteristics of Enlisted Women Respondents		
	Army	Navy
Total N	529	693
Category	N (%)	N (%)
Education		
Did not graduate from H.S.	1 (0.2)	3 (0.4)
GED	6 (1.1)	6 (0.9)
High school	131 (24.8)	288 (41.6)
Trade/technical school	15 (2.8)	24 (3.5)
Some college	329 (62.2)	327 (47.2)
College	33 (6.2)	35 (5.1)
Graduate study	8 (1.5)	5 (0.7)
Graduate degree	6 (1.1)	5 (0.7)
Race		
Black	238 (45.0)	156 (22.5)
Caucasian	227 (42.9)	453 (65.4)
Asian/Pacific Islander	13 (2.5)	27 (3.9)
American Indian	6 (1.1)	11 (1.6)
Other	45 (8.5)	46 (6.6)
Hispanic Origin		
Not Hispanic	490 (92.6)	629 (90.8)
Hispanic	39 (7.4)	64 (9.2)
Pay Grade		
E1	3 (0.6)	23 (3.3)
E2	24 (4.5)	63 (9.1)
E3	79 (14.9)	143 (20.6)
E4	170 (32.1)	132 (19.0)
E5	89 (16.8)	133 (19.2)
E6	51 (9.6)	94 (13.6)
E7	88 (16.6)	73 (10.5)
E8	24 (4.5)	28 (4.0)
E9	1 (0.2)	4 (0.6)
Marital Status		
Married	257 (48.9)	345 (50.0)
Separated	38 (7.2)	34 (4.9)
Divorced	69 (13.1)	61 (8.8)
Widowed	0 (0.0)	6 (0.9)
Single	162 (30.8)	244 (35.4)

Nearly half of the enlisted women in the Army and Navy responding to the survey were married, but nearly a third were single. Most had received some college education. Similar to the findings in the literature review, the racial breakdown of enlisted women demonstrates a high proportion of black women in the Army. The largest proportion by race in the Navy is Caucasian women, followed by black women. Most of the respondents were in the mid-range of pay grades, between E3 and E5.

The enlisted Army and Navy women had comparable mean ages, 28.35 years of age (s.d.=7.44) in the Army and 27.55 years of age (s.d.=7.21) in the Navy. The Army enlisted women had an average of 85.5 months on active duty (s.d.=76.89), and the enlisted women in the Navy had an average of 86.4 months on active duty (s.d.=74.52). The large standard deviations suggest that the range in number of months was large.

Discriminant Analysis

Below are the results of discriminant analyses using the data for enlisted females from the *1995 DoD Survey of Health Related Behaviors among Military Personnel* (N= 2,341) for three dependent variables that represent the columns in the table below (see Table 3). The first dependent variable, "Lifetime STD," indicated whether the respondent reported ever having an STD in her lifetime. The second dependent variable, "Pregnancy," indicated the reported period of time since the respondent's last pregnancy (never been pregnant was also one possible response). The third dependent variable, "Pap Test Screening," indicated the reported period of time since the respondent's last Pap test. The rows represent the independent variables that were included in each model. F scores and significance is only given for variables that were included in the model because of their significant effect on the dependent variable.

The findings show that the respondent's lifetime number of sexual partners was significantly related to all three dependent variables.

STD infection was significantly related to race, ease of obtaining OB-GYN care, and lifetime number of sexual partners. The finding that ease of obtaining OB-GYN care at the installation affects whether the respondent reported an STD may suggest that fewer STDs are diagnosed and therefore go unreported when OB-GYN care is less accessible a woman's installation.

Besides lifetime number of sexual partners, several other factors were related to time since last pregnancy, including: age, marital status, living with spouse, living with child, race, satisfaction with OB-GYN care at the installation, number of days drinking beer in the pas month, amount of liquor drunk on a typical day, and number of sex partners in the past year.

Pay grade and marital status were the only demographic factors significantly related to Pap test screening. Ease of obtaining OB-GYN care in the military in general and at the installation and satisfaction with that care were all related to the time since having received a Pap test. No other factors except lifetime number of sexual partners was significantly related to this variable of interest.

Table 3: Discriminant Analysis Findings for Factors Significantly Related to Variables of Interest			
Factors	Lifetime STD F score (significance)	Pregnancy F score (significance)	Pap Test Screening F score (significance)
Age	N/A	196.44 (.000)	N/A
Paygrade	N/A	N/A	30.92 (.000)
Education	N/A	N/A	N/A
Marital status	N/A	104.13 (.000)	24.51 (.000)
Living with spouse	N/A	65.51 (.000)	N/A
Living with child	N/A	149.02 (.000)	N/A
Race	111.75 (.000)	43.31 (.000)	N/A
Number of days drank beer in past 30 days	N/A	79.96 (.000)	N/A
How much liquor drunk on a typical drinking day	N/A	39.13 (.000)	N/A
Ease of obtaining OB- GYN care in military	N/A	N/A	53.94 (.000)
Ease of obtaining OB- GYN care at installation	76.43 (.000)	N/A	17.88 (.000)
Satisfaction with OB- GYN care at installation	N/A	35.68 (.000)	37.98 (.000)
Number of sex partners in past year	N/A	48.62 (.000)	N/A
Lifetime number of sex partners	193.89 (.000)	55.80 (.000)	20.68 (.000)

N/A – Nonsignificant finding.

Other variables entered into the equation were not significantly related to any of the variables of interest. The only nonrelated demographic variable was Hispanic origin. Related to military service, months on active duty and the last time the respondent was deployed did not have an effect on any of the variables. Several alcohol-related behaviors were not significantly related either: number of days that wine or liquor was drunk in the past 30 days, the amount of beer drunk on a typical drinking day and the amount of wine drunk on a typical drinking day. Number of years smoking and number of cigarettes a day were also not related. Stress related to work or to being a woman in the military were not related to the variables, nor was ease of obtaining health care or satisfaction with health care. Of the sexual behavior factors, condom use during last intercourse, frequency of condom use, and frequency of sexual intercourse were not related to any of the variables of interest.

Analysis Related to Rationale for Target Group

Data from the *1995 DoD Survey of Health Related Behaviors Among Military Personnel* also suggested that, relative to female officers, enlisted women had a greater need for reproductive health education interventions designed to reduce STD infection and unintended pregnancy. An analysis of data on STD infection and pregnancy among females in the Navy¹ indicated that enlisted female respondents had significantly higher rates of STD infection and pregnancy relative to female officer respondents (Table 4).

Table 4 Rates of Reproductive Health Concerns Among Female Officers and Enlisted women in the Army and Navy*

Indicator	Female Officers (%)	Female Enlisted (%)	Chi-Square	P
Ever pregnant?	57.6	46.2	10.02	.007
Pregnant on active duty?	29.9	19.9	16.48	.000
Ever had an STD?	26.3	17.4	5.78	.016
Had an STD in past year?	7.0	1.8	6.42	.011

* Statistics calculated from data collected in the *1995 DoD Survey of Health Related Behaviors Among Military Personnel*

D. Discussion

Because our needs assessment process is not yet complete (we are especially lacking input from Navy enlisted females and clinicians to date), discussion of the results must be preliminary. Given that we have incomplete results, however, we can say that the literature review, the expert panel, the secondary analysis findings, and the focus groups we have been able to do have generated several important areas for further consideration in designing the health educational materials for enlisted Army and Navy women.

The general demographics and the future projections of women in the military suggest that women will remain a significant part of the Armed Forces. Therefore, we believe that efforts to improve their readiness and health will remain important to the Department of Defense. Not only must these efforts recognize the effect of being both a woman and a soldier or sailor; they must also recognize the needs of each woman in terms of age, education, marital status, and job category.

A primary example of the need to take into account the situation of the woman is found in the proposed target audience of this project. Although this project was proposed as an effort targeted to the needs of enlisted women, members of the expert panel and clinicians participating in the focus groups have raised questions about the exclusion of active duty female officers, saying that these women would also benefit from reproductive health education. Data from the *1995 DoD Survey of Health Related Behaviors Among Military Personnel*, indicated that female officers were, on average, older, more

educated, and had more years of military experience than enlisted females. Further, these data also suggested that, relative to female officers, enlisted women had a greater need for reproductive health education interventions designed to reduce STD infection and unintended pregnancy because enlisted respondents had significantly higher rates of STD infection and pregnancy relative to female officer respondents.

Concerning general health issues, both the focus groups and literature review, female soldiers and sailors tend to be younger and fit. However, they must perform duties that affect their health in ways that civilian women are not typically affected. The stress of deployment, both short and long, contributes greatly to their health status, according to the secondary analysis. In order to retain respect from their male counterparts, they often feel they must compete and even over achieve. Even though the younger female soldier or sailor can be young and experienced—which may predispose them to risk behaviors (see secondary analysis and focus groups)—they also tend to be interested in their health as demonstrated by their use of health services and interest in health education (see focus group findings).

Unintentional pregnancy is a serious issue for the military in that it has proven to affect readiness through periodic reduction in forces, premature separation, evacuation from deployment operations, and increased medical costs. For enlisted females who find themselves to be pregnant and want to continue the pregnancy, job duties, deployment, and chemical exposure may interfere with the ability to have a healthy pregnancy. The military environment is perceived to both encourage unintentional pregnancy (through the resources and supportive services available to single mothers) and discourage it (through social disapproval from commanders and fellow soldiers/sailors). Women and clinicians are both acutely concerned about women who use pregnancy as a way to avoid duties and deployment and even to end their military service.

Hormonal contraception, via birth control pills and Depo Provera, are reported to be the most common forms of birth control. Even though birth control methods are available as part of their medical care, the unintended pregnancy rate approximates the rate among civilian women. Unintentional pregnancies are attributed to lack of contraception (from focus group findings), lack of use of effective methods, and incorrect use. Clinicians in focus groups also reported that contraceptives and other medications may be depleted and unavailable to women who are deployed. For example, medics are not allowed to provide Depo Provera injections to women, making this medication unavailable to women in field settings.

Another reproductive health problem among enlisted women is sexually transmitted disease infection. As a younger, sexually active population, enlisted women are generally at risk for STDs. Among enlisted women, military clinicians perceive high rates of chlamydia and HPV, which are potentially dangerous because of their relationship to infertility and cervical cancer, respectively. Some enlisted women mistakenly assume their male counterparts are safer than civilian males because they were screened for HIV infection on entry into the military. Clinicians are concerned about reaching both civilian and military male partners of STD-infected women because, if untreated, they are likely to reinfect the woman. Enlisted women may be uncomfortable being prepared with barrier contraceptives like condoms because, similar to contraception, being prepared will make them appear promiscuous.

The literature and the secondary analysis revealed that alcohol use is an important risk behavior related to sexual risk behavior. The stress of military service as well as risk taking that occurs when support systems are not available (such as under deployment conditions) also increase sexual risk taking behavior among enlisted women.

Learning to decline sexual activity and even practicing abstinence were seen as viable ways to protect against pregnancy and STD infection by both clinicians and enlisted women in the focus groups. For the women, they cited the male dominated environment in the military where young women are likely to receive greater sexual attention than they are used to. Valuing oneself was seen as important over having sex with anyone who asks, and partners were perceived to be more likely to respect a woman who was more selective. When advocating for teaching abstinence to enlisted women, clinicians emphasized the actual limits of effectiveness of condoms against STD infection, particularly viral STDs like HPV, herpes, and HIV.

The literature and the enlisted female focus groups also highlighted the issue of vaginal infections and urinary tract infections and their effect on readiness. Poor hygiene, lack of bathing facilities, lack of proper supplies in the field, and limiting water consumption all contribute to the problem. More experienced enlisted women reported how they had learned creative ways to stay clean when deployed, and some had enlisted the help of enlisted males in setting up bathing facilities. Others reported that they simply learned to demand that their commanders give them the time and privacy to take care of their hygiene. Clinicians and enlisted women reported that the issue needed to be made important to the officer in charge just as vehicle maintenance is.

In reports on military medical care, enlisted women appear to be satisfied with their care which is free and supports preventive reproductive health care by providing annual breast and pelvic examinations, contraception, and family planning counseling. However, qualitative information gathered during the focus groups show another view. Accessing health care was reported as an important problem in that clinic hours are mostly during duty hours, and the women have to obtain permission from their commander to go to sick call. Obtaining routine well woman care can be perceived as avoiding work or as weakness. Women are also embarrassed and uncomfortable discussing their reproductive health needs with their commander, especially if they suspect a problem. Several enlisted women reported that they prefer going to the military hospital, a military STD clinic, or a civilian doctor because they feel they have more privacy than going to the troop medical clinic where medics who are their peers work. Others complained about their medical care, saying that they had to go to the clinic several times before their problem was adequately identified and treated; these women felt they needed to know as much or more than the clinician to be able to demand proper care. Sometimes the "profile" women receive—which tells their commanders what physical activities they can and cannot do—is not correct and leads to further injury when they return to duty and are not released from duties from which they should be released.

The literature, clinicians, and enlisted women report a lack of health education. What is available is cursory and limited in appeal. For example, they may be given hygiene and First Aid information in during basic training. Written information is made available in medical centers, and a few installations are implementing health education. The women reported getting excessive information on sexual harassment and on little else. Often health education opportunities for enlisted women result in a backlash: they feel penalized because they have an additional requirement than males and because they

can, again, appear to be avoiding duty.

Another important finding during the focus groups was the supportive environment in appeared to afford to the enlisted females and for clinicians who took part. The clinician groups often focused on policies and programs they could support or initiative to intervene on an issue. The enlisted women appeared to take support as well as ideas from each other, some reporting that they often feel isolated in their units. The women reported that they appreciated getting information from other female in their situation.

III. Conclusions

Because the project continues to be delayed by the clearance procedures necessary to accomplish the needs assessment, we can only draw preliminary conclusions. We have some indication on the content and structure of the intervention to be designed. We will also list the activities anticipated for the next year of operation.

The findings provide guidance on areas to consider for the development of the health education materials. In terms of the intervention to be planned, the population that should receive it is unclear. Although enlisted women is proposed as the key group, including enlisted males and female officers were other specific targets for reproductive health education. Others felt that officers needed to know what enlisted women experienced in order to be better prepared to command them. Clinicians may also need to be familiar with the materials. The secondary analysis provided evidence that enlisted women are in greater need of education compared to female officers because they had more risk factors. Further, an intervention that targets primarily enlisted women will still have relevance for female officers. The final decision on target population should be clarified in the final analysis of the needs assessment findings so that the educational intervention can be tailored appropriately.

In the event that the target population remains enlisted women, the content should include basic information on anatomy and physiology, STDs, pregnancy, vaginitis, and UTI. In addition, learning activities should be centered on contraception, safe sex practices, and proper hygiene under regular circumstances and in less than ideal conditions (e.g., the field). Skills in communicating with partners and health care providers is also important content. Well woman care in the breast and pelvic exam and routine tests should also be explained. Testimonials from experienced peers and simulations of decision making experiences were positively viewed teaching methods by enlisted women because they would make the information more interesting to learn. An adult education format that was not moralizing or patronizing was preferred by respondents.

Where the intervention should be deployed is also unclear. Many intervention points exist for reaching enlisted women. Some clinicians support use of the materials in the clinic setting. However, others support broader dissemination to the barracks or a learning center closer to the troops. Focus group participants liked the privacy of a computer-based system, but women and clinicians are concerned about accessibility. A great deal of support was expressed for making a portion of the materials mandatory so women did not experience additional requirements, so everyone received a basic level of understanding, and so those who wanted to use them would not feel embarrassed or stigmatized.

The findings also point to issues that should be raised in other ways to raise awareness of the reproductive health of enlisted women and ways to make a difference in health outcomes for enlisted women. Various intervention points are possible, from basic training to annual education seminars required of recruits. Also, various people can provide guidance on health concerns, including the clinicians at the medical center, the health care providers at the troop medical clinics (and branch medical clinics), and through unit leaders. Making reproductive health as important to the unit as vehicular maintenance was another issue that may require policy level changes at the unit or installation level. These are all preliminary issues that will be clarified once the needs assessment is completed.

Over the next year of the project, we plan to conduct the following activities:

- conduct the needs assessment surveys;
- finish the needs assessment focus groups;
- compile the findings of the data collection;
- produce a design document and plan for the multimedia application;
- settle on final design specifications for the multimedia application, recognizing recent advances in communications technology; and
- establish preliminary agreements with bases who will participate in the field test of the application.

Appendix A

Focus Group Guide: Enlisted Army Women

Focus Group Questions: Enlisted Army Women

Introduction:

Hello, my name is _____. Thank you for participating in this focus group today. A focus group is a group discussion where several participants explore a topic. I will be moderating this focus group, and _____(name of recorder) will be taking notes.

We are here from Macro International, which has been contracted by the U.S. Army to conduct a 4-year research project to investigate enlisted women's needs for health education on basic gynecological and reproductive health issues. We are conducting surveys and focus groups like this one to determine the needs of enlisted women. Based on that information, we plan to develop and test educational materials with enlisted Army and Navy women. This study is important because the number of women in the U.S. Armed Forces is increasing, and statistics show that the rate of unintended pregnancies, sexually transmitted diseases (STDs), and common preventable gynecological conditions, such as vaginitis, among enlisted women deserve attention.

The purpose of this focus group is to gather information which will help in designing the educational materials. This information is being gathered from enlisted Army and Navy women at four bases in the United States. During the group, we will be discussing reproductive health issues, military health care, and health education in the military. I will ask you about your perceptions of the attitudes, behaviors, and preferences of enlisted Army women in general. At no time will you be asked about your own behavior. The focus group should take about an hour and a half.

This study is anonymous, so your name or any other identifying information will not be included in the report. All information will be kept confidential. Your participation is voluntary, and you may decide to stop at any time. If you decide to stop you will not be penalized in any way. If you have any questions or don't understand what I am asking at any time, please let me know and I will explain further.

The most important thing is to be straightforward and honest. We are interested in your opinions, and different opinions are welcomed. There are no right or wrong answers. We understand that talking about reproductive and gynecological issues can be uncomfortable, but please say whatever you are thinking.

I would just like to ask that you speak one at a time and that everyone participate. If you have any questions about this process, I will answer them now.

(tell them about tape recorder and/or notetaker. Give them consent form to read and sign, and explain honorarium. Have them put name [first name or nick name] on a sign to place in front of them.)

I'd like to start the discussion with a round of introductions. Let's go around the table. I'd like each of you to give your name, say where you are from, and how long you've been in the Army.

GENERAL HEALTH

How important is health to women? How do you think being an enlisted Army soldier affects feelings about health?

What do Army women worry about most when it comes to their health?

- What should they worry about?
- What about their reproductive health? (*Paraphrase to explain "reproductive" if needed.*)
Go to section below that was mentioned first or most often by participants.

HEALTH CARE

How do enlisted women feel about health care in the Army?

Where do most enlisted Army women get gynecological care?

- Why? (*If respondent says private physician, probe Why not military?*)

What types of questions do Army women ask their health care providers?

- What should they ask?
- Why don't they ask these questions?
- Are the questions that Army women ask military health care providers different from those they ask civilian health care providers?

What are the reasons women do not to get an annual Pap test?

- What would make it easier?

What types of health services and/or counseling do Army women typically get before deployment?

- What services should they get?

How common is it for women to get a physical before deployment? How about a Pap and pelvic exam?

- When is it important for a woman to get a predeployment gynecological exam?
- What are reasons women do not get this exam before deployment?

VAGINAL INFECTIONS/HYGIENE

What do most Army women do when they think they have a vaginal infection?

What do most Army women do to prevent vaginal infections?

- Are there any reasons that Army women may have trouble preventing vaginal infections

What would help Army women to prevent vaginal infections? What would help them get appropriate treatment for vaginal infections?

What do Army women do to prevent infections when they are in the field?

- What do they do when they think they have a vaginal infection in the field?
- What medical and hygiene supplies do Army women pack when they are deployed?

PREGNANCY

How common do you think unintentional pregnancy is among enlisted Army women?

How much do you think Army women worry about getting pregnant?

- Do you think they should be more concerned? Why or why not?
- What happens to enlisted women who get pregnant in the Army?
- Why do you think some enlisted women get pregnant in the Army?

What should an enlisted woman do if she thinks she might be pregnant?

CONTRACEPTION

What do enlisted women need to know to better prevent unintentional pregnancy?

What are the ways that Army women prevent pregnancy? How about in the field?

- What are the types of contraceptives most often used by Army women? Why?
- What types of contraception are used in the field? *(If different from general types, probe to find out why.)*

How hard is it to get contraception when you need it in the Army?

- What makes it hard to get?
- What could make it easier?

How hard is it to get contraception in the field?

- What makes it hard to get?
- What could make it easier?

What do enlisted women need to know to use contraception consistently and effectively?

SEXUALLY TRANSMITTED DISEASES

What STDs do you think are most common among women?

Repeat with each STD indicated:

- How much do you think Army women worry about getting _____?
- Do you think they should be more concerned? Why or why not?
- What are some of the things that can happen to a woman who gets this STD?

What percent of Army women do you think have STDs?

- A 1995 survey says that ____ % of Army women reported having an STD last year.
- How do you feel about this information? Does it seem high or low to you? Why?

What are some ways that women protect themselves from STDs?

- Why don't some women do these things?

What do enlisted women need to know to better protect themselves from STDs?

CONDOM USAGE

What do you think most sexually active women in the Army think about using condoms?

- How about their partners?
- What do their health care providers tell them?
- What other messages do they get about condom use?

When should a woman use a condom?

- Does it depend on other contraception she is using? Does it depend on her partner? Something else?

What makes it hard to use condoms every time?

- What would make it easier?

SEXUAL COMMUNICATION

We know that people who are able to talk with their sexual partners about sex and condoms are more likely to practice safe sex.

- Why do you think this is so?

What makes talking about these issues with partners difficult for women? Why?

- What would make it easier?

What do you think are the costs, or risks, of talking about sex with a partner (e.g., condoms, sexual history)? What would be the benefits?

HEALTH EDUCATION

What kinds of health education are available in the Army? How about reproductive health or women's health?

- How helpful was it? Why?

What reproductive health topics do you think enlisted Army women **need** to know more about?

- Why?
- Is this different from what they **want** to know more about?

How can enlisted Army women find out about these topics now?

- Where do they go? Who do they usually talk to?

We want to teach enlisted women about prevention and self-care.

Imagine that you were put in charge of getting information on reproductive health to all women at your base. What do you think would be the best way to get this information to enlisted women?

- What would be the most effective way to present it?
- What would help them learn more about self-care and prevention?

What could the Army do to get health information to all enlisted women in the Army?

If we made a computer program about prevention and self care, what are some things that would make enlisted women interested in using it?

Have you ever used a computer to learn about health (e.g. via the Internet, in classrooms, etc.?)

Would you recommend it to other women? Why or why not?

- What would you change?

What skills would women like yourselves like to see demonstrated on a computer program?

Give a couple of examples: How to use condoms correctly? How to talk to a partner about sexual matters? How to practice proper hygiene in the field?

What kinds of scenarios, or stories, would enlisted Army women like to see in this program?

- What would be realistic?

Where would enlisted Army women want to use a program like this?

- *Probe if unresponsive: Health center/clinic? Computer laboratory? Kiosk? Other place?*

What other materials or education would help enlisted women improve their self-care and preventive behaviors?

If we make a pocket field guide that summarizes prevention and self-care information, what would be helpful to include in it? What should it look like?

How could the Army ensure that every active duty women received a pocket field guide?

Appendix B

Focus Group Guide: Enlisted Navy Women

Focus Group Questions: Enlisted Navy Women

Introduction:

Hello, my name is _____. Thank you for participating in this focus group today. A focus group is a group discussion where several participants explore a topic. I will be moderating this focus group, and _____(name of recorder) will be taking notes.

We are here from Macro International, which has been contracted by the U.S. Army to conduct a 4-year research project to investigate enlisted women's needs for health education on basic gynecological and reproductive health issues. We are conducting surveys and focus groups like this one to determine the needs of enlisted women. Based on that information, we plan to develop and test educational materials with enlisted Army and Navy women. This study is important because the number of women in the U.S. Armed Forces is increasing, and statistics show that the rate of unintended pregnancies, sexually transmitted diseases (STDs), and common preventable gynecological conditions, such as vaginitis, among enlisted women deserve attention.

The purpose of this focus group is to gather information which will help in designing the educational materials. This information is being gathered from enlisted Army and Navy women at four bases in the United States. During the group, we will be discussing reproductive health issues, military health care, and health education in the military. I will ask you about your perceptions of the attitudes, behaviors, and preferences of enlisted Navy women in general. At no time will you be asked about your own behavior. The focus group should take about an hour and a half.

This study is anonymous, so your name or any other identifying information will not be included in the report. All information will be kept confidential. Your participation is voluntary, and you may decide to stop at any time. If you decide to stop you will not be penalized in any way. If you have any questions or don't understand what I am asking at any time, please let me know and I will explain further.

The most important thing is to be straightforward and honest. We are interested in your opinions, and different opinions are welcomed. There are no right or wrong answers. We understand that talking about reproductive and gynecological issues can be uncomfortable, but please say whatever you are thinking.

I would just like to ask that you speak one at a time and that everyone participate. If you have any questions about this process, I will answer them now.

(tell them about tape recorder and/or notetaker. Give them consent form to read and sign, and explain honorarium. Have them put name [first name or nick name] on a sign to place in front of them.)

I'd like to start the discussion with a round of introductions. Let's go around the table. I'd like each of you to give your name, say where you are from, and how long you've been in the Navy.

GENERAL HEALTH

How important is health to women? How do you think being an enlisted Navy sailor affects feelings about health?

What do Navy women worry about most when it comes to their health?

- What should they worry about?
- What about their reproductive health? (*Paraphrase to explain "reproductive" if needed.*)
Go to section below that was mentioned first or most often by participants.

HEALTH CARE

How do enlisted women feel about health care in the Navy?

Where do most enlisted Navy women get gynecological care?

- Why? (*If respondent says private physician, probe Why not military?*)

What types of questions do Navy women ask their health care providers?

- What should they ask?
- Why don't they ask these questions?
- Are the questions that Navy women ask military health care providers different from those they ask civilian health care providers?

What are the reasons women do not to get an annual Pap test?

- What would make it easier?

What types of health services and/or counseling do Navy women typically get before deployment?

- What services should they get?

How common is it for women to get a physical before deployment? How about a Pap and pelvic exam?

- When is it important for a woman to get a predeployment gynecological exam?
- What are reasons women do not get this exam before deployment?

VAGINAL INFECTIONS/HYGIENE

What do most Navy women do when they think they have a vaginal infection?

What do most Navy women do to prevent vaginal infections?

- Are there any reasons that Navy women may have trouble preventing vaginal infections

What would help Navy women to prevent vaginal infections? What would help them get appropriate treatment for vaginal infections?

What do Navy women do to prevent infections when they are in the field?

- What do they do when they think they have a vaginal infection in the field?
- What medical and hygiene supplies do Navy women pack when they are deployed?

PREGNANCY

How common do you think unintentional pregnancy is among enlisted Navy women?

How much do you think Navy women worry about getting pregnant?

- Do you think they should be more concerned? Why or why not?
- What happens to enlisted women who get pregnant in the Navy?
- Why do you think some enlisted women get pregnant in the Navy?

What should an enlisted woman do if she thinks she might be pregnant?

CONTRACEPTION

What do enlisted women need to know to better prevent unintentional pregnancy?

What are the ways that Navy women prevent pregnancy? How about in the field?

- What are the types of contraceptives most often used by Navy women? Why?
- What types of contraception are used in the field? *(If different from general types, probe to find out why.)*

How hard is it to get contraception when you need it in the Navy?

- What makes it hard to get?
- What could make it easier?

How hard is it to get contraception in the field?

- What makes it hard to get?
- What could make it easier?

What do enlisted women need to know to use contraception consistently and effectively?

SEXUALLY TRANSMITTED DISEASES

What STDs do you think are most common among women?

Repeat with each STD indicated:

- How much do you think Navy women worry about getting _____?
- Do you think they should be more concerned? Why or why not?
- What are some of the things that can happen to a woman who gets this STD?

What percent of Navy women do you think have STDs?

- A 1995 survey says that ____ % of Navy women reported having an STD last year.
- How do you feel about this information? Does it seem high or low to you? Why?

What are some ways that women protect themselves from STDs?

- Why don't some women do these things?

What do enlisted women need to know to better protect themselves from STDs?

CONDOM USAGE

What do you think most sexually active women in the Navy think about using condoms?

- How about their partners?
- What do their health care providers tell them?
- What other messages do they get about condom use?

When should a woman use a condom?

- Does it depend on other contraception she is using? Does it depend on her partner? Something else?

What makes it hard to use condoms every time?

- What would make it easier?

SEXUAL COMMUNICATION

We know that people who are able to talk with their sexual partners about sex and condoms are more likely to practice safe sex.

- Why do you think this is so?

What makes talking about these issues with partners difficult for women? Why?

- What would make it easier?

What do you think are the costs, or risks, of talking about sex with a partner (e.g., condoms, sexual history)? What would be the benefits?

HEALTH EDUCATION

What kinds of health education are available in the Navy? How about reproductive health or women's health?

- How helpful was it? Why?

What reproductive health topics do you think enlisted Navy women **need** to know more about?

- Why?
- Is this different from what they **want** to know more about?

How can enlisted Navy women find out about these topics now?

- Where do they go? Who do they usually talk to?

We want to teach enlisted women about prevention and self-care.

Imagine that you were put in charge of getting information on reproductive health to all women at your base. What do you think would be the best way to get this information to enlisted women?

- What would be the most effective way to present it?
- What would help them learn more about self-care and prevention?

What could the Navy do to get health information to all enlisted women in the Navy?

If we made a computer program about prevention and self care, what are some things that would make enlisted women interested in using it?

Have you ever used a computer to learn about health (e.g. via the Internet, in classrooms, etc.?)

Would you recommend it to other women? Why or why not?

- What would you change?

What skills would women like yourselves like to see demonstrated on a computer program?

Give a couple of examples: How to use condoms correctly? How to talk to a partner about sexual matters? How to practice proper hygiene in the field?

What kinds of scenarios, or stories, would enlisted Navy women like to see in this program?

- What would be realistic?

Where would enlisted Navy women want to use a program like this?

- *Probe if unresponsive: Health center/clinic? Computer laboratory? Kiosk? Other place?*

What other materials or education would help enlisted women improve their self-care and preventive behaviors?

If we make a pocket field guide that summarizes prevention and self-care information, what would be helpful to include in it? What should it look like?

How could the Navy ensure that every active duty women received a pocket field guide?

Appendix C

Focus Group Guide: Army Clinicians

Focus Group Questions: Military Clinicians Serving Army Women

Introduction:

Hello, my name is _____. Thank you for participating in this focus group today. A focus group is a group discussion where several participants explore a topic. I will be moderating this focus group, and _____(name of recorder) will be taking notes.

We are here from Macro International, which has been contracted by the U.S. Army to conduct a 4-year research project to investigate enlisted women's needs for health education on basic gynecological and reproductive health issues. We are conducting surveys and focus groups like this one to determine the needs of enlisted women. Based on that information, we plan to develop and test educational materials with enlisted Army and Navy women. This study is important because the number of women in the U.S. Armed Forces is increasing, and statistics show that the rate of unintended pregnancies, sexually transmitted diseases (STDs), and common preventable gynecological conditions, such as vaginitis, among enlisted women deserve attention.

The purpose of this focus group is to gather information which will help in designing the educational materials. This information is being gathered from military clinicians at four bases in the United States. During the group, we will be discussing health and issues of concern to enlisted Army women including reproductive health issues, military health care, and health education in the military. I will be asking you about your perceptions of the attitudes, behaviors, and preferences of enlisted Army women and their clinicians in general. At no time will you be asked about your own behavior. The focus group should take about an hour and a half.

This study is anonymous, so your name or any other identifying information will not be included in the report. All information will be kept confidential. Your participation is voluntary, and you may decide to stop at any time. If you decide to stop you will not be penalized in any way. If you have any questions or don't understand what I am asking at any time, please let me know and I will explain further.

The most important thing is to be straightforward and honest. We are interested in your opinions, and different opinions are welcomed. There are no right or wrong answers. We understand that talking about reproductive and gynecological issues can be uncomfortable, but please say whatever you are thinking.

I would just like to ask that you speak one at a time and that everyone participate. If you have any questions about this process, I will answer them now.

(tell them about tape recorder and/or notetaker. Give them consent form to read and sign, and explain honorarium. Have them put name on a sign to place in front of them.)

I'd like to start the discussion with a round of introductions. Let's go around the table. I'd like each of you to give your name, say where you are from, and how long you've been in the Army.

GENERAL HEALTH

How important do you think health is to enlisted women in the Army? Why do you think this?
How do you think being an enlisted Army soldier affects enlisted women's feelings about health?

What do Army women worry about most when it comes to their health?

- What should they worry more about?
- What about their reproductive health?

HEALTH CARE

In general, how do you think enlisted women feel about health care in the Army?

What do Army women have a right to expect from their health care providers?

How comfortable do you think most women feel talking to their health care provider? (*Give examples: talking about STDs, condom use, sexual dysfunction.*)

- What makes them more or less comfortable?

How comfortable are health care providers in talking about these matters with patients?

What types of questions do Army women ask their health care providers?

- What should they ask?

What types of questions do health care providers ask enlisted women about their reproductive health (i.e., sexual practices history)?

- What should they ask?

What types of reproductive health screening and/or counseling are typically provided to enlisted Army women?

- What should be provided (that isn't currently)?

What types of health services and/or counseling do Army women typically get before deployment?

- What about pregnancy testing?

How common is it for women to get a physical before deployment? How about a Pap and pelvic exam?

- When is it important for a woman to get a predeployment gynecological exam?
- What are reasons women do not get this exam before deployment?

What types of health services and/or counseling do Army women typically receive in the field?

- What health services or counseling should they receive in the field?

VAGINAL INFECTIONS/HYGIENE

How common do you think vaginal infections are among enlisted women in the Army? How do you think being an enlisted Army soldier affects enlisted women's risk for vaginal infection?

What do most Army women do to prevent vaginal infections?

- How about in the field?

What medical and hygiene supplies do Army women pack when they are deployed?

- What should they pack?

How should health care providers prepare for the hygiene needs of enlisted women in the field?

- What supplies should health care providers make sure are available to enlisted women?

What would help them get appropriate treatment for vaginal infections?

- Again, what do they do differently in the field?

PREGNANCY

How common is unintentional pregnancy among enlisted Army women? How do you think this compares to civilian women?

How much do you think Army women worry about getting pregnant?

- Do you think they should be more concerned? Why or why not? (*Prompt: What happens to enlisted women who get pregnant in the Army?*)
- Why do you think some enlisted women get pregnant in the Army?

What would help Army women avoid unintended pregnancies?

- What can their health care providers do to help?

CONTRACEPTION

What are the types of contraceptives most often used by Army women? Why?

What type of counseling/education about contraception do health care providers give enlisted women? When?

- How could they do this more effectively?

How hard is it for enlisted to get contraception when they you need it?

- What makes it hard to get? What could make it easier?

What do enlisted women need to know to use contraception consistently and effectively?

- What else do enlisted women need to know to better prevent unintentional pregnancy?

How do most Army women prevent pregnancy when they are in the field?

How hard is it for enlisted women to get contraception in the field?

- What makes it hard to get? What could make it easier?

What should health care providers do to address the contraceptive needs of enlisted women in the field?

SEXUALLY TRANSMITTED DISEASES/CONDOM USE

Let's talk a little about STDs. What STDs do you think are most common among Army women?

How much do you think Army women worry about STDs?

- Do you think they should be more concerned? Why or why not?

What percent of Army women do you think have STDs?

- A 1995 survey says that ____ % of Army women reported having an STD last year.
- How do you feel about this information? Does it seem high or low to you? Why?

What do enlisted women need to know to better protect themselves from STDs?

- What about condoms? What do they need to know?
- What do they think about using condoms? What about their partners?

Should health care providers be responsible for giving STD prevention information to enlisted women?

- How should health care providers promote condom use among enlisted women?

HEALTH EDUCATION

Let's talk more about health education in the Army. What kinds of health education are available? How about reproductive health or women's health?

- How adequate is the health education that enlisted women receive? Why do you think this?

What reproductive health topics do you think enlisted Army women **need** to know more about?

- Why? Is this different from what they **want** to know more about?

How can Army women find out about these topics now? How do they?

- Where do they go? Who do they usually talk to?

We are developing a reproductive health intervention to teach enlisted women about prevention and self-care.

Imagine that you were put in charge of getting information on reproductive health to all women at your base. What do you think would be the best way to do this?

- What would be the most effective way to present it?
- What would help them learn more about self-care and prevention? What content?

What could the Army do to get health information to all enlisted women in the Army?

If we made a computer program about prevention and self care, what are some things that would make enlisted women interested in using it?

- What would it look like?

What skills would enlisted women benefit from seeing demonstrated on a computer program?

Give a couple of examples: How to use condoms correctly? How to talk to a partner about sexual matters? How to practice proper hygiene in the field?

What kinds of dramatic stories do you think would be useful for enlisted Army women to see in this program? What are some realistic scenarios?

Where would enlisted Army women use a program like this?

Have you ever used a computer to teach about health (e.g. via the Internet, in classrooms, etc.)?

Would you recommend it to other clinicians?

- Why or why not?

What are some things that would make clinicians interested in using computer-based education with patients? Does being a military clinician affect the willingness or interest in using computer materials with patients?

What other materials or education would help enlisted women improve their self-care and preventive behaviors?

If we make a pocket field guide that summarizes prevention and self-care information, what would be helpful to include in it? What should it look like?

How could the Army ensure that every active duty women received a pocket field guide?

Appendix D

Focus Group Guide: Navy Clinicians

Focus Group Questions: Military Clinicians Serving Navy Women

Introduction:

Hello, my name is _____. Thank you for participating in this focus group today. A focus group is a group discussion where several participants explore a topic. I will be moderating this focus group, and _____(name of recorder) will be taking notes.

We are here from Macro International, which has been contracted by the U.S. Army to conduct a 4-year research project to investigate enlisted women's needs for health education on basic gynecological and reproductive health issues. We are conducting surveys and focus groups like this one to determine the needs of enlisted women. Based on that information, we plan to develop and test educational materials with enlisted Army and Navy women. This study is important because the number of women in the U.S. Armed Forces is increasing, and statistics show that the rate of unintended pregnancies, sexually transmitted diseases (STDs), and common preventable gynecological conditions, such as vaginitis, among enlisted women deserve attention.

The purpose of this focus group is to gather information which will help in designing the educational materials. This information is being gathered from military clinicians at four bases in the United States. During the group, we will be discussing health and issues of concern to enlisted Navy women including reproductive health issues, military health care, and health education in the military. I will asking you about your perceptions of the attitudes, behaviors, and preferences of enlisted Navy women and their clinicians in general. At no time will you be asked about your own behavior. The focus group should take about an hour and a half.

This study is anonymous, so your name or any other identifying information will not be included in the report. All information will be kept confidential. Your participation is voluntary, and you may decide to stop at any time. If you decide to stop you will not be penalized in any way. If you have any questions or don't understand what I am asking at any time, please let me know and I will explain further.

The most important thing is to be straightforward and honest. We are interested in your opinions, and different opinions are welcomed. There are no right or wrong answers. We understand that talking about reproductive and gynecological issues can be uncomfortable, but please say whatever you are thinking.

I would just like to ask that you speak one at a time and that everyone participate. If you have any questions about this process, I will answer them now.

(tell them about tape recorder and/or notetaker. Give them consent form to read and sign, and explain honorarium. Have them put name on a sign to place in front of them.)

I'd like to start the discussion with a round of introductions. Let's go around the table. I'd like each of you to give your name, say where you are from, and how long you've been in the Navy.

GENERAL HEALTH

How important do you think health is to enlisted women in the Navy? Why do you think this?
How do you think being an enlisted Navy sailor affects enlisted women's feelings about health?

What do Navy women worry about most when it comes to their health?

- What should they worry more about?
- What about their reproductive health?

HEALTH CARE

In general, how do you think enlisted women feel about health care in the Navy?

What do Navy women have a right to expect from their health care providers?

How comfortable do you think most women feel talking to their health care provider? (*Give examples: talking about STDs, condom use, sexual dysfunction.*)

- What makes them more or less comfortable?

How comfortable are health care providers in talking about these matters with patients?

What types of questions do Navy women ask their health care providers?

- What should they ask?

What types of questions do health care providers ask enlisted women about their reproductive health (i.e., sexual practices history)?

- What should they ask?

What types of reproductive health screening and/or counseling are typically provided to enlisted Navy women?

- What should be provided (that isn't currently)?

What types of health services and/or counseling do Navy women typically get before deployment?

- What about pregnancy testing?

How common is it for women to get a physical before deployment? How about a Pap and pelvic exam?

- When is it important for a woman to get a predeployment gynecological exam?
- What are reasons women do not get this exam before deployment?

What types of health services and/or counseling do Navy women typically receive in the field?

- What health services or counseling should they receive in the field?

VAGINAL INFECTIONS/HYGIENE

How common do you think vaginal infections are among enlisted women in the Navy? How do you think being an enlisted Navy sailor affects enlisted women's risk for vaginal infection?

What do most Navy women do to prevent vaginal infections?

- How about in the field?

What medical and hygiene supplies do Navy women pack when they are deployed?

- What should they pack?

How should health care providers prepare for the hygiene needs of enlisted women in the field?

- What supplies should health care providers make sure are available to enlisted women?

What would help them get appropriate treatment for vaginal infections?

- Again, what do they do differently in the field?

PREGNANCY

How common is unintentional pregnancy among enlisted Navy women? How do you think this compares to civilian women?

How much do you think Navy women worry about getting pregnant?

- Do you think they should be more concerned? Why or why not? (*Prompt: What happens to enlisted women who get pregnant in the Navy?*)
- Why do you think some enlisted women get pregnant in the Navy?

What would help Navy women avoid unintended pregnancies?

- What can their health care providers do to help?

CONTRACEPTION

What are the types of contraceptives most often used by Navy women? Why?

What type of counseling/education about contraception do health care providers give enlisted women? When?

- How could they do this more effectively?

How hard is it for enlisted to get contraception when they you need it?

- What makes it hard to get? What could make it easier?

What do enlisted women need to know to use contraception consistently and effectively?

- What else do enlisted women need to know to better prevent unintentional pregnancy?

How do most Navy women prevent pregnancy when they are in the field?

How hard is it for enlisted women to get contraception in the field?

- What makes it hard to get? What could make it easier?

What should health care providers do to address the contraceptive needs of enlisted women in the field?

SEXUALLY TRANSMITTED DISEASES/CONDOM USE

Let's talk a little about STDs. What STDs do you think are most common among Navy women?

How much do you think Navy women worry about STDs?

- Do you think they should be more concerned? Why or why not?

What percent of Navy women do you think have STDs?

- A 1995 survey says that ____ % of Navy women reported having an STD last year.
- How do you feel about this information? Does it seem high or low to you? Why?

What do enlisted women need to know to better protect themselves from STDs?

- What about condoms? What do they need to know?
- What do they think about using condoms? What about their partners?

Should health care providers be responsible for giving STD prevention information to enlisted women?

- How should health care providers promote condom use among enlisted women?

HEALTH EDUCATION

Let's talk more about health education in the Navy. What kinds of health education are available? How about reproductive health or women's health?

- How adequate is the health education that enlisted women receive? Why do you think this?

What reproductive health topics do you think enlisted Navy women **need** to know more about?

- Why? Is this different from what they **want** to know more about?

How can Navy women find out about these topics now? How do they?

- Where do they go? Who do they usually talk to?

We are developing a reproductive health intervention to teach enlisted women about prevention and self-care.

Imagine that you were put in charge of getting information on reproductive health to all women at your base. What do you think would be the best way to do this?

- What would be the most effective way to present it?
- What would help them learn more about self-care and prevention? What content?

What could the Navy do to get health information to all enlisted women in the Navy?

If we made a computer program about prevention and self care, what are some things that would make enlisted women interested in using it?

- What would it look like?

What skills would enlisted women benefit from seeing demonstrated on a computer program?

Give a couple of examples: How to use condoms correctly? How to talk to a partner about sexual matters? How to practice proper hygiene in the field?

What kinds of dramatic stories do you think would be useful for enlisted Navy women to see in this program? What are some realistic scenarios?

Where would enlisted Navy women use a program like this?

Have you ever used a computer to teach about health (e.g. via the Internet, in classrooms, etc.)?

Would you recommend it to other clinicians?

- Why or why not?

What are some things that would make clinicians interested in using computer-based education with patients? Does being a military clinician affect the willingness or interest in using computer materials with patients?

What other materials or education would help enlisted women improve their self-care and preventive behaviors?

If we make a pocket field guide that summarizes prevention and self-care information, what would be helpful to include in it? What should it look like?

How could the Navy ensure that every active duty women received a pocket field guide?

Appendix E

**Military Clinician
Needs Assessment Survey**

Health Care Provider Survey: Health Needs of Enlisted Army and Navy Women

The purpose of this survey is to collect information about the health knowledge, attitudes, and practices of military health care providers who serve enlisted Army and Navy women. The information you provide will help to identify the kind of health programs and services enlisted women in the Army and Navy need.

The survey asks several questions about reproductive health care provided to enlisted women. We realize that some of the questions may be sensitive for health care providers who may feel that standard medical care should include some services that they are unable to provide because of constraints. To get good information, it is important that everyone be as honest as possible.

Completing the survey is voluntary, and the answers you give will be safeguarded to the fullest extent possible in accordance with the applicable statutes. Once we receive your survey, we will destroy the information linking your answers with any personal information, so your answers will then be anonymous. Your answers will be combined with the answers of other military health care providers serving enlisted Army and Navy women. No individual responses will be reported, so please answer every question as honestly as you can.

Do not write your name on this survey.

When you are finished, send back the completed survey in the return envelope. No postage is necessary.

Privacy Act Statement

Needs Assessment Survey among Military Clinicians

<u>Authority:</u>	10 U.S.C. §136 and §2358
<u>Principal Purpose(s):</u>	To assess the range of reproductive health education efforts and needs of enlisted women in the armed services.
<u>Routine Use(s):</u>	None. (Data concerning individual participants and their survey answers will not be distributed outside the DoD or its contractors.)
<u>Disclosure:</u>	Voluntary. There is no penalty if you choose not to respond. However, maximum participation is encouraged so that the data will be complete and representative.

Thank you very much for your help.

Health Care Provider Survey: Health Needs of Enlisted Army and Navy Women

I. Demographics—Mark only one answer to each question unless you are asked to check all that apply.

- | | |
|--|---|
| <p>1. How old are you? _____ Years</p> <p>2. What is your sex?</p> <p><input type="checkbox"/> Female
<input type="checkbox"/> Male</p> <p>3. How do you describe yourself?</p> <p><input type="checkbox"/> White—not Hispanic
<input type="checkbox"/> Black—not Hispanic
<input type="checkbox"/> Hispanic or Latino
<input type="checkbox"/> Asian or Pacific Islander
<input type="checkbox"/> American Indian or Alaskan Native
<input type="checkbox"/> Other (specify): _____</p> <p>4. In what branch of the service are you?</p> <p><input type="checkbox"/> Army
<input type="checkbox"/> Navy
<input type="checkbox"/> Other (Specify): _____</p> <p>5. Date of entry in the service:</p> <p>Month _____ Day _____ Year _____</p> <p>6. Date of separation/Estimated time of separation</p> <p>Month _____ Day _____ Year _____</p> <p>7. Type of health care provider:</p> <p><input type="checkbox"/> Nurse
<input type="checkbox"/> Nurse Practitioner
<input type="checkbox"/> Physician's Assistant
<input type="checkbox"/> Physician
<input type="checkbox"/> Other (Specify): _____</p> <p>8. Type of clinic/service where you practice:</p> <p><input type="checkbox"/> Family Practice
<input type="checkbox"/> Internal Medicine
<input type="checkbox"/> Obstetrics/Gynecology
<input type="checkbox"/> Preventive Medicine
<input type="checkbox"/> Active Duty Medical Clinic
<input type="checkbox"/> Other (Specify): _____</p> | <p>9. In what year did you complete your basic medical training (i.e., medical or nursing school)?</p> <p>19 ____</p> <p>10. In what type of health care facility did you receive your postgraduate medical/nursing training?</p> <p><input type="checkbox"/> Military
<input type="checkbox"/> Civilian</p> <p>11. Have you had training in health care as it pertains to readiness?</p> <p><input type="checkbox"/> Yes
<input type="checkbox"/> No</p> <p>12. What type of deployment experience do you have? (Check all that apply.)</p> <p><input type="checkbox"/> None
<input type="checkbox"/> Field training exercises
<input type="checkbox"/> Combat duty
<input type="checkbox"/> Humanitarian missions
<input type="checkbox"/> Other (Specify): _____</p> <p>13. Prior to this study have you ever had any training in women's health? Please do not count participation in this study. (Check all that apply.)</p> <p><input type="checkbox"/> None, and I am not interested in any
<input type="checkbox"/> None, but I would like to have training in this area.
<input type="checkbox"/> Medical/nursing school
<input type="checkbox"/> Residency
<input type="checkbox"/> Subspecialty certification
<input type="checkbox"/> Continuing medical education
<input type="checkbox"/> Other (Specify): _____</p> |
|--|---|

Health Care Provider Survey: Health Needs of Enlisted Army and Navy Women

14. Prior to this study have you ever had any training in **STD prevention counseling** skills? (Check all that apply.)

- ☐ None, and I am not interested in any
- ☐ None, but I would like to have training in this area.
- ☐ Medical/nursing school
- ☐ Residency
- ☐ Subspecialty certification
- ☐ Continuing medical education
- ☐ Other (Specify): _____

15. Prior to this study have you ever had any training in **sexual risk assessment** (sexual history taking) skills? (Check all that apply.)

- ☐ None, and I am not interested in any
- ☐ None, but I would like to.
- ☐ Medical/nursing school
- ☐ Residency
- ☐ Subspecialty certification
- ☐ Continuing medical education
- ☐ Other (Specify): _____

16. Prior to this study have you ever had any training in **contraception counseling** skills? (Check all that apply.)

- ☐ None, and I am not interested in any
- ☐ None, but I would like to.
- ☐ Medical/nursing school
- ☐ Residency
- ☐ Subspecialty certification
- ☐ Continuing medical education
- ☐ Other (Specify): _____

If you are not a physician, GO TO QUESTION #20.

For Physicians:

17. In which of the following specialties are you board certified or board eligible? (Check all that apply.)

- ☐ Family Practice
- ☐ Internal Medicine
- ☐ Obstetrics/Gynecology
- ☐ None, I am a General Medical Officer.
- ☐ I am not a physician (skip to question 20)
- ☐ Other (Specify): _____

18. In which type of health care facility did you do your internship?

- ☐ Military
- ☐ Civilian

19. In which type of health care facility did you do your residency?

- ☐ Military
- ☐ Civilian
- ☐ None, I am a General Medical Officer

Health Care Provider Survey: Health Needs of Enlisted Army and Navy Women

II. Attitudes—The following questions ask your opinion, based on your experience as a practitioner, about specific health problems and behaviors that are important for enlisted Army and Navy women.

20. **Ideally**, which of the following *should be included in routine care visits* for enlisted women for their reproductive health? **(Check all that apply.)**

☐ Pregnancy testing
☐ Contraceptive education/counseling
☐ STD screening
☐ Sexual history taking
☐ STD prevention education
☐ Education on hygiene practices
☐ None.
☐ Other (Specify): _____

21. **Realistically**, which of the following *are being included in routine care visits* for enlisted women for their reproductive health? **(Check all that apply.)**

☐ Pregnancy testing
☐ Contraceptive education/counseling
☐ STD screening
☐ Sexual history taking
☐ STD prevention education
☐ Education on hygiene practices
☐ None.
☐ Other (Specify): _____
☐ I don't know.

22. **Ideally**, which of the following *should be included in predeployment care* for enlisted women for their reproductive health? **(Check all that apply.)**

☐ Pregnancy testing
☐ Contraceptive education/counseling
☐ STD prevention education
☐ Prescription medication review
☐ Education on hygiene practices
☐ None
☐ Other (Specify): _____

23. **Realistically**, which of the following *are included in predeployment care* for enlisted women for their reproductive health? **(Check all that apply.)**

☐ Pregnancy testing
☐ Contraceptive education/counseling
☐ STD prevention education
☐ Prescription medication review
☐ Education on hygiene practices
☐ None
☐ Other (Specify): _____
☐ I don't know.

24. **Ideally**, what medical and hygiene supplies would you **recommend be available** during deployment to care for the reproductive health needs of enlisted women? **(Check all that apply.)**

☐ None.
☐ Oral contraceptives
☐ Depo Provera injections
☐ Condoms
☐ Unscented tampons
☐ Unscented panty liners
☐ Unscented wet-wipes
☐ Yeast infection medication
☐ Female urinary director
☐ Other: _____

25. What is the **most common** reproductive health problem among enlisted women? **(Check one.)**

☐ STD infection
☐ Unintended pregnancy
☐ Ectopic pregnancy
☐ Spontaneous abortion
☐ Vaginal infection (non-STD)
☐ Urinary tract infection
☐ Other: _____

Health Care Provider Survey: Health Needs of Enlisted Army and Navy Women

26. What is the **most serious** reproductive health problem among enlisted women?

- ☐ STD infection
- ☐ Unintended pregnancy
- ☐ Spontaneous abortion
- ☐ Ectopic pregnancy
- ☐ Vaginal infection (non-STD)
- ☐ Urinary tract infection
- ☐ Other: _____

27. What is the **most common** reproductive health problem among enlisted women in the field?

- ☐ STD infection
- ☐ Unintended pregnancy
- ☐ Spontaneous abortion
- ☐ Ectopic pregnancy
- ☐ Vaginal infection (non-STD)
- ☐ Urinary tract infection
- ☐ Other: _____
- ☐ No field experience with women

28. What is the **most serious** reproductive health problem among enlisted women in the field?

- ☐ STD infection
- ☐ Unintended pregnancy
- ☐ Spontaneous abortion
- ☐ Ectopic pregnancy
- ☐ Vaginal infection (non-STD)
- ☐ Urinary tract infection
- ☐ Other: _____
- ☐ No field experience with women

29. What do you perceive to be the **most common reason for premature separation** from the military among enlisted women?

- ☐ Exceeding height/weight/body fat standards
- ☐ Drug/alcohol abuse
- ☐ Criminal activity
- ☐ Physical disability/injury
- ☐ Pregnancy
- ☐ Other: _____

30. What is the likelihood that the average enlisted woman will experience an STD within the next year?

- ☐ Very unlikely
- ☐ Unlikely
- ☐ Likely
- ☐ Very Likely
- ☐ Almost Definitely
- ☐ I don't know.

31. What is the likelihood that the average enlisted woman will experience an **unintentional pregnancy** within the next year?

- ☐ Very unlikely
- ☐ Unlikely
- ☐ Likely
- ☐ Very Likely
- ☐ Almost Definitely
- ☐ I don't know.

32. What is the likelihood that the average enlisted woman will experience a vaginal infection (non-STD) within the next year?

- ☐ Very unlikely
- ☐ Unlikely
- ☐ Likely
- ☐ Very Likely
- ☐ Almost Definitely
- ☐ I don't know.

33. In general, what is the attitude of enlisted women toward **using male condoms**?

- ☐ Very positive
- ☐ Positive
- ☐ Neutral
- ☐ Negative
- ☐ Very negative
- ☐ I don't know.

34. In general, what is the attitude of enlisted women's partners toward **using male condoms**?

- ☐ Very unlikely
- ☐ Unlikely
- ☐ Likely
- ☐ Very Likely
- ☐ Almost Definitely
- ☐ I don't know.

Health Care Provider Survey: Health Needs of Enlisted Army and Navy Women

35. In general, what is the attitude of enlisted women toward **using a method of birth control**?

- ☐ Very positive
- ☐ Positive
- ☐ Neutral
- ☐ Negative
- ☐ Very negative
- ☐ I don't know.

36. What is the most common reason that enlisted women have **unintentional pregnancies**? (Check one answer.)

- ☐ Lack of knowledge about reproduction
- ☐ Lack of skill using birth control
- ☐ Inability to persuade partner to use birth control method
- ☐ Not feeling that she is at risk
- ☐ Lack of awareness of effect on life
- ☐ Negative attitudes toward birth control
- ☐ Religious reasons
- ☐ Partner's negative attitudes toward birth control
- ☐ Strategy to avoid field duty
- ☐ Other: _____
- ☐ I don't know.

37. What is the most common reason that enlisted women **do not use safer sex practices**? (Check one answer.)

- ☐ Lack of knowledge about STDs
- ☐ Lack of skill using condoms
- ☐ Inability to persuade partner to use STD prevention method
- ☐ Not feeling that she is at risk
- ☐ Low self-esteem
- ☐ Negative attitudes toward condoms
- ☐ Religious reasons
- ☐ Partner's negative attitudes toward
- ☐ Other: _____
- ☐ I don't know.

38. What is the most common reason that enlisted women get **non-STD vaginal infections** (yeast, etc.)? (Check one answer.)

- ☐ Lack of knowledge about hygiene
- ☐ Improper use of hygiene products
- ☐ Unhealthy lifestyle (stress, poor diet)
- ☐ Lack of skill in proper hygiene
- ☐ Inability to practice proper hygiene in the field environment
- ☐ Not feeling that she is at risk
- ☐ Other: _____
- ☐ I don't know.

III. Health Services—The next questions are about services you have provided to enlisted women during routine health visits (annual Pap test), during predeployment, and during deployment in the last 6 months. We realize that health care providers often have "ideal" standards but that they may not be able to deliver their "ideal" health care due to different constraints. We are interested in what you are able to do.

The following 11 questions are about routine care visits.

39. What proportion of your patients are enlisted women?

- ☐ All or nearly all
- ☐ Most
- ☐ About half
- ☐ Some
- ☐ Few
- ☐ None

40. What proportion of your enlisted female patients do you provide with **contraceptive education and counseling**?

- ☐ All or nearly all
- ☐ Most
- ☐ About half
- ☐ Some
- ☐ Few
- ☐ None

Health Care Provider Survey: Health Needs of Enlisted Army and Navy Women

41. What proportion of your enlisted female patients do you provide with **STD prevention counseling and education**?

- ☐ All or nearly all
- ☐ Most
- ☐ About half
- ☐ Some
- ☐ Few
- ☐ None

42. On what proportion of your enlisted female patients do you take a **sexual history (sexual risk assessment)**?

- ☐ All or nearly all
- ☐ Most
- ☐ About half
- ☐ Some
- ☐ Few
- ☐ None

43. What proportion of your enlisted female patients do you personally ask about their **use of STD prevention methods**?

- ☐ All or nearly all
- ☐ Most
- ☐ About half
- ☐ Some
- ☐ Few
- ☐ None

44. What proportion of your enlisted female patients do you provide with education on **hygiene practices**?

- ☐ All or nearly all
- ☐ Most
- ☐ About half
- ☐ Some
- ☐ Few
- ☐ None

45. What prevents you from providing ***routine* contraceptive education and counseling** to your enlisted female patients? (**Check all that apply.**)

- ☐ I provide this service to all patients.
- ☐ I only provide this service to patients who request it.
- ☐ Not needed by all patients
- ☐ No time
- ☐ Lack of staff
- ☐ Lack of skills
- ☐ Lack of comfort
- ☐ No policy making this standard care
- ☐ Not effective
- ☐ Other: _____

46. What prevents you from taking a **sexual history (sexual risk assessment)** from your enlisted female patients? (**Check all that apply.**)

- ☐ I provide this service to all patients.
- ☐ I only provide this service to patients who request it.
- ☐ Not needed by all patients
- ☐ No time
- ☐ Lack of staff
- ☐ Lack of skills
- ☐ Lack of comfort
- ☐ No policy making this standard care
- ☐ Not effective
- ☐ Other: _____

47. What prevents you from providing **STD prevention counseling and education** to your enlisted female patients? (**Check all that apply.**)

- ☐ I provide this service to all patients.
- ☐ I only provide this service to patients who request it.
- ☐ Not needed by all patients
- ☐ No time
- ☐ Lack of staff
- ☐ Lack of skills
- ☐ Lack of comfort
- ☐ No policy making this standard care
- ☐ Not effective
- ☐ Other: _____

Health Care Provider Survey: Health Needs of Enlisted Army and Navy Women

48. What prevents you from asking enlisted female patients about their use of **STD prevention methods**? (Check all that apply.)

- ☐ I provide this service to all patients.
- ☐ I only provide this service to patients who request it.
- ☐ Not needed by all patients
- ☐ No time
- ☐ Lack of staff
- ☐ Lack of skills
- ☐ Lack of comfort
- ☐ No policy making this standard care
- ☐ Not effective
- ☐ Other: _____

49. What prevents you from providing **personal hygiene education** to enlisted female patients? (Check all that apply.)

- ☐ I provide this service to all patients.
- ☐ I only provide this service to patients who request it.
- ☐ Not needed by all patients
- ☐ No time
- ☐ Lack of staff
- ☐ Lack of skills
- ☐ Lack of comfort
- ☐ No policy making this standard care
- ☐ Not effective
- ☐ Other: _____

The following 5 questions refer to predeployment care given to enlisted women who are deployed.

50. What proportion of your enlisted female patients who are deployed do you see for a **predeployment** medical appointment?

- ☐ All or nearly all
- ☐ Most
- ☐ About half
- ☐ Some
- ☐ Few
- ☐ None
- ☐ I am not responsible for predeployment care.

51. What do you do to prepare enlisted female patients for their reproductive health needs **during predeployment planning**? (Check all that apply.)

- ☐ Pregnancy testing
- ☐ Contraceptive education/counseling
- ☐ STD prevention education
- ☐ Prescription medication review
- ☐ Education on hygiene practices
- ☐ None
- ☐ Other: _____
- ☐ I am not responsible for predeployment care.

52. What prevents you from providing **predeployment contraceptive education and counseling** to enlisted female patients? (Check all that apply.)

- ☐ I provide this service to all patients.
- ☐ Not needed by all patients
- ☐ No time
- ☐ Lack of staff
- ☐ Lack of skills
- ☐ Lack of comfort
- ☐ No policy making this standard care.
- ☐ Not effective
- ☐ Other: _____
- ☐ I am not responsible for predeployment care.

53. What prevents you from providing **personal hygiene information** to enlisted female patients during predeployment planning? (Check all that apply.)

- ☐ I provide this service to all patients.
- ☐ Not needed by all enlisted women
- ☐ No time
- ☐ Lack of staff
- ☐ Lack of skills
- ☐ Lack of comfort
- ☐ No policy making this standard care.
- ☐ Not effective
- ☐ Other: _____
- ☐ I am not responsible for predeployment care.

Health Care Provider Survey: Health Needs of Enlisted Army and Navy Women

54. What prevents you from providing **STD prevention counseling** and education to enlisted female patients during **predeployment planning**? (**Check all that apply.**)

- ☐ I provide this service to all patients.
- ☐ Not needed by all enlisted women
- ☐ No time
- ☐ Lack of staff
- ☐ Lack of skills
- ☐ Lack of comfort
- ☐ No policy making this standard care.
- ☐ Not effective
- ☐ Other: _____
- ☐ I am not responsible for predeployment care.

The next 4 questions ask about care you have given to enlisted women during deployment.

55. What do you do to educate **individual** enlisted female patients about their reproductive health needs **during deployment**? (**Check all that apply.**)

- ☐ Contraceptive education/counseling
- ☐ STD prevention education
- ☐ Education on hygiene practices
- ☐ None
- ☐ Other: _____
- ☐ I have not participated in a deployment with women.

56. What do you do to educate enlisted female patients **as a group** about their reproductive health needs **during deployment**? (**Check all that apply.**)

- ☐ Contraceptive education/counseling
- ☐ STD prevention education
- ☐ Education on hygiene practices
- ☐ None
- ☐ Other: _____
- ☐ I have not participated in a deployment with women.

57. What do you do when treating enlisted female patients with their reproductive health needs **during deployment**? (**Check all that apply.**)

- ☐ Sexual history taking
- ☐ Pregnancy testing
- ☐ Contraceptive education/counseling
- ☐ STD prevention education
- ☐ Education on hygiene practices
- ☐ Treatment of acute infection
- ☐ Dispense oral contraceptive
- ☐ None
- ☐ Other: _____
- ☐ I have not participated in a deployment with women.

58. What medical and hygiene supplies are **routinely available** to you during deployment to care for the reproductive health needs of enlisted women? (**Check all that apply.**)

- ☐ I am not responsible for OB/GYN deployment care.
- ☐ Oral contraceptives
- ☐ Depo Provera injections
- ☐ Condoms
- ☐ Unscented tampons
- ☐ Unscented panty liners
- ☐ Unscented wet-wipes
- ☐ Yeast infection medication
- ☐ Female urinary director
- ☐ Other: _____

Health Care Provider Survey: Health Needs of Enlisted Army and Navy Women

Put an X in the box that most closely shows your opinion about the medical care enlisted women receive in the military.

59. Very Positive ☐ ☐ ☐ ☐ ☐ ☐ ☐ Very Negative
60. Low Quality ☐ ☐ ☐ ☐ ☐ ☐ ☐ High Quality
61. Easy to get appointments ☐ ☐ ☐ ☐ ☐ ☐ ☐ Hard to get appointments
62. Overdue test results ☐ ☐ ☐ ☐ ☐ ☐ ☐ Timely test results
63. Confidential ☐ ☐ ☐ ☐ ☐ ☐ ☐ Not confidential
64. Competent staff ☐ ☐ ☐ ☐ ☐ ☐ ☐ Incompetent staff
65. Inadequate time with clinician ☐ ☐ ☐ ☐ ☐ ☐ ☐ Adequate time with clinician
66. Hard to talk to clinician ☐ ☐ ☐ ☐ ☐ ☐ ☐ Easy to talk to clinician

IV. Health Education—We are interested in how you feel about the health education that enlisted women receive in the military in general. Please answer the following questions:

67. On which reproductive health topics have you ever given a class (or presentation) to enlisted female patients? **(Check all that apply.)**

- ☐ Alcohol and other drug use prevention
- ☐ Birth control/family planning
- ☐ STD prevention
- ☐ AIDS or HIV infection prevention
- ☐ Prevention of vaginal infections
- ☐ Personal hygiene
- ☐ Empowerment/assertiveness training
- ☐ I have never presented information on any of these topics to enlisted women.

68. Which **written** health education materials have you given to enlisted female patients about their health? **(Check all that apply.)**

- ☐ Alcohol and other drug use prevention
- ☐ Birth control/family planning
- ☐ STD prevention
- ☐ AIDS or HIV infection prevention
- ☐ Prevention of vaginal infections
- ☐ Empowerment/assertiveness training
- ☐ Personal hygiene
- ☐ I have never given written information on these topics to enlisted women.

Health Care Provider Survey: Health Needs of Enlisted Army and Navy Women

69. Which **video/audio** health education materials have you used to teach enlisted female patients about their health? (**Check all that apply.**)

- ☐ Alcohol and other drug use prevention
- ☐ Birth control/family planning
- ☐ STD prevention
- ☐ AIDS or HIV infection prevention
- ☐ Prevention of vaginal infections
- ☐ Personal hygiene
- ☐ Empowerment/assertiveness training
- ☐ I have never given video or audio information on these topics to enlisted women.

70. Which **computer-based** health education materials have you used to teach enlisted female patients about their health? (**Check all that apply.**)

- ☐ Alcohol and other drug use prevention
- ☐ Birth control/family planning
- ☐ STD prevention
- ☐ AIDS or HIV infection prevention
- ☐ Prevention of vaginal infections
- ☐ Personal hygiene
- ☐ Empowerment/assertiveness training
- ☐ I have never given computer-based information on these topics to enlisted women.

71. Choose the statement that best describes the **quality of contraceptive education** enlisted women receive:

- ☐ Very good
- ☐ Good
- ☐ Neither good nor bad
- ☐ Bad
- ☐ Very bad

72. Choose the statement that best describes the **amount of contraceptive education** enlisted women receive:

- ☐ Too much
- ☐ Right amount
- ☐ Too little

73. Choose the statement that best describes the **quality of STD prevention education** enlisted women receive:

- ☐ Very good
- ☐ Good
- ☐ Neither good nor bad
- ☐ Bad
- ☐ Very bad

74. Choose the statement that best describes the **amount of STD prevention education** enlisted women receive:

- ☐ Too much
- ☐ Right amount
- ☐ Too little

75. Choose the statement that best describes the **quality of personal hygiene education** enlisted women receive:

- ☐ Very good
- ☐ Good
- ☐ Neither good nor bad
- ☐ Bad
- ☐ Very bad

76. Choose the statement that best describes the **amount of personal hygiene education** enlisted women receive:

- ☐ Too much
- ☐ Right amount
- ☐ Too little

77. Choose the statement that best describes the **quality of empowerment/assertiveness skill training** enlisted women receive:

- ☐ Very good
- ☐ Good
- ☐ Neither good nor bad
- ☐ Bad
- ☐ Very bad

78. Choose the statement that best describes the **amount of empowerment/assertiveness skill training** enlisted women receive:

- ☐ Too much
- ☐ Right amount
- ☐ Too little

Appendix F

**Military Chairperson
Needs Assessment Survey**

Needs Assessment Survey: Health Education of Enlisted Army and Navy Women

This survey is about health education and health services as they pertain to the reproductive health needs of enlisted women in the U.S. Army and Navy. The information you provide will help identify the kind of health programs and services enlisted women in the Army and Navy need.

Do not write your name or any other identifying information on this survey.

Privacy Act Statement

Needs Assessment Survey among Military Clinicians

Authority: 10 U.S.C. §136 and §2358

Principal Purpose(s): To assess the range of reproductive health education efforts and needs of enlisted women in the armed services.

Routine Use(s): None. (Data concerning individual participants and their survey answers will not be distributed outside the DoD or its contractors.)

Disclosure: Voluntary. There is no penalty if you choose not to respond. However, maximum participation is encouraged so that the data will be complete and representative.

I. Demographics

1. Age: _____ Years
2. Sex: ☐ Female
☐ Male
3. Race/Ethnicity:
☐ White - not Hispanic
☐ Black - not Hispanic
☐ Hispanic or Latino
☐ Asian or Pacific Islander
☐ American Indian/Alaskan Native
☐ Other (specify): _____
4. Service Branch:
☐ Army
☐ Navy
☐ Other (Specify): _____
5. Your title:
☐ Chairperson
☐ Troop Clinic Commander
☐ Senior Medical Officer
☐ Other (Specify): _____
6. Department:
☐ Family Practice
☐ Internal Medicine
☐ Obstetrics/Gynecology
☐ Preventive Medicine
☐ Active Duty Medical Clinic/Sick Call
☐ Other (Specify): _____
7. Where is your service/department located?
☐ In a teaching medical center
☐ In a community hospital
☐ In a freestanding clinic
☐ Other (Specify): _____
8. Year medical training completed:
Medical School: 19 ____
Residency: 19 ____
9. Have you had training in health care as it pertains to readiness?
☐ Yes
☐ No
10. What type of deployment experience do you have? **(Check all that apply.)**
☐ None
☐ Field training exercises
☐ Combat duty
☐ Humanitarian missions
☐ Other (Specify): _____
11. On average, how many outpatient visits does your department have **per month**?

12. What proportion of your patients are enlisted women?
☐ All or nearly all (81-100%)
☐ Most (61-80%)
☐ About half (41-60%)
☐ Some (21-40%)
☐ Few (1-20%)
☐ None (0%)
13. What is the primary mission of your base/post? **(Check all that apply.)**
☐ Deployment
☐ Basic training
☐ Education
☐ Other (Specify): _____
14. What other departments provide routine gynecologic care to enlisted Army/Navy women?
☐ Family Practice
☐ Internal Medicine
☐ Obstetrics/Gynecology
☐ Preventive Medicine
☐ Active Duty Medical Clinic
☐ Other (Specify): _____

Needs Assessment Survey: Health Education of Enlisted Army and Navy Women

II. Reproductive Health of Enlisted Women—Please answer the following questions on the basis of your clinical experience with enlisted female patients in the Army or Navy.

15. Check one only in each row: In your experience, what reproductive health problem among enlisted women is . . .

	STD infection	Unintended pregnancy	Spontaneous Abortion	Ectopic pregnancy	Vaginal Infection (non-STD)	Urinary tract infection	Other (Specify)
most common overall?							
most serious overall?							
most common in the field environment?							
most serious in the field environment?							

16. Check one only in each row: In your experience, what is the most common reason that enlisted women. . .

	Lack of knowledge	Lack of skills	Negative attitudes about preventive behaviors	Negative Partner's attitudes	Lack of perceived risk	Low self-confidence	Other (Specify)
do not practice safer sex?							
have unintentional pregnancies?							
get non-STD vaginal infections (yeast, etc.)?							

III. Health Services—The following questions ask about the types of health services your department offers to all enlisted female patients during routine health care appointments (annual Pap tests) and during predeployment planning in the last 6 months.

17. What does your department do routinely for enlisted female patients **during annual exams**? (Check all that apply.)
- ☐ Contraceptive education and counseling
 - ☐ Sexual history taking
 - ☐ STD prevention education
 - ☐ Education on hygiene practices
 - ☐ HIV testing
 - ☐ None of the above
 - ☐ Unknown

Needs Assessment Survey: Health Education of Enlisted Army and Navy Women

18. Check all that apply in each row: Which of the following are obstacles to providing routine. . .

	Lack of time	Lack of staff	Lack of skilled staff	Not all patients need	Lack of comfort	Not effective	No policy making this standard care	Other (Specify)
contraceptive education/counseling?								
sexual history taking?								
STD prevention education?								
personal hygiene information?								

19. What proportion of your enlisted female patients come to your department for a predeployment medical appointment?

- ☐ All or nearly all
- ☐ Most
- ☐ About half
- ☐ Some
- ☐ Few
- ☐ None
- ☐ Unknown
- ☐ Not responsible for predeployment care (skip to question 23).

20. During predeployment planning, what does your department do routinely to help prepare enlisted female patients for their deployment reproductive health needs? (Check all that apply.)

- ☐ Pregnancy testing
- ☐ Contraceptive education and counseling
- ☐ STD prevention education
- ☐ Prescription medication review
- ☐ Recommend supplies for period
- ☐ Education on hygiene practices
- ☐ No special preparation for deployment
- ☐ Unknown

21. Check all that apply in each row: At predeployment, which of the following are obstacles to providing. . .

	Lack of time	Lack of staff	Lack of skilled staff	Not needed by all patients	Lack of comfort	Not effective	No policy making this standard care	Other (Specify)
contraceptive education/counseling?								
sexual history taking?								
STD prevention education?								
personal hygiene education?								

22. During predeployment planning, what medical and hygiene supplies does your department recommend be supplied to units for the reproductive health needs of enlisted women? (Check all that apply, and add others not listed.)

- ☐ Not responsible for medical supplies.
- ☐ Oral contraceptives
- ☐ Unscented tampons
- ☐ Unscented panty liners
- ☐ Unscented wet-wipes
- ☐ Yeast infection medication
- ☐ Female urinary director
- ☐ Other: _____
- ☐ _____
- ☐ Unknown

Needs Assessment Survey: Health Education of Enlisted Army and Navy Women

IV. Health Education—We are interested in how you feel about the health care and the health education that enlisted women receive in the military.

23. In each row, check all media that apply: On which of the following health topics has your department provided education to enlisted women in the past year?

	Course or presentation	Written materials	Video or audiotaped instruction	Computer-based instruction	None	Unknown
Alcohol and other drug use prevention						
Birth control/family planning						
STD prevention education						
AIDS or HIV infection prevention						
Prevention of vaginal infections						
Personal hygiene						
Empowerment/assertiveness skills						

24. In each row, check one box in each area: Rate the health education that enlisted women receive in the military.

	Quality					Amount		
	Very Bad	Bad	Neither Good nor Bad	Good	Very Good	Too Little	Right Amount	Too Much
Contraceptive education								
STD prevention education								
Personal hygiene education								
Empowerment/assertiveness skill training								
Other:								

25. Other comments about enlisted women's reproductive health? (Please describe briefly below.)



Appendix G

Updated Literature Review

Introduction

Women currently comprise approximately 13 percent of the active duty Armed Forces, and projections indicate that women may represent nearly 20 percent of the military in the near future (Institute of Medicine [IOM], 1995). Historically, health concerns for military women have been related to the impact of active duty on their health and the possible adverse influence of women's health problems on readiness (Hoiberg and White, 1992). Although some of the early concerns about the ability of women to meet the physical demands of military service have been discounted (Harman et al., 1996), a salient lack of vital information still exists regarding the unique health education needs of military women (IOM, 1995). Furthermore, many assumptions made regarding women are based almost solely on research involving men as subjects (IOM, 1995). As a result, women's special health needs that may impact their readiness and work performance must be examined and addressed to improve the effectiveness of women in military service.

Statement of the Problem

While studies of the environmental, social, and occupational influences on health and well-being are common among the general population, fewer resources discuss these factors as they apply to women who have chosen to enlist in the U.S. Armed Forces. Women in the military face circumstances and challenges that are unlike those seen by women in the civilian population. All women have unique health concerns as compared to their male counterparts. Compared to civilian women, military women have further distinctive self-care and care-seeking behaviors that are related to the unusual situations they face.

In 1995, the Committee of Defense Women's Health Research issued recommendations for four specific areas of research on military women: 1) major factors affecting the health and work performance of military women, 2) psychological and health issues resulting from integration of women into male environments and quarters, 3) health promotion and disease prevention, and 4) access to and delivery of health care (IOM, 1995).

In prioritizing health issues that are prevalent among this population, reproductive health concerns emerge time and again. Sexually transmitted diseases, unplanned pregnancies, and vaginal infections are particularly prevalent among military women, especially younger women (aged 25 and younger), who make up nearly half of the female active duty population. These reproductive and gynecological diseases and conditions, particularly the occurrence of unplanned pregnancy, have the potential to interfere with a female soldier's ability to perform mission responsibilities.

This literature review addresses two of the four recommendations of the Committee of Defense Women's Health Research, major factors affecting the health and work performance of military women, and health promotion and disease prevention. By seeking to understand the major

reproductive health factors affecting military women, this study identifies appropriate health promotion intervention strategies that will be tailored to the special needs of this population. Based on these recommendations, the Department of Defense issued a Broad Agency Announcement (BAA) calling for proposals to address these issues.

The Institute of Medicine and the Broad Agency Announcement (BAA) have recommended that proposed research deal with health issues that are: 1) unique to military women, 2) especially prevalent among military women, and 3) related to the ability of military women to perform their mission responsibilities. Consistent with these criteria, our research examines the most pressing reproductive and gynecological self-care and care-seeking education needs of military women on base and in the field. Although all women, including civilian women, have unique health concerns as compared to their male counterparts, military women's self-care and care-seeking behaviors are specifically related to the unusual situations they face. In prioritizing health issues that are prevalent among this population, reproductive health concerns emerge time and again. Sexually transmitted diseases, unplanned pregnancies, and vaginal infections are particularly prevalent among military women, especially younger women. Regarding the third area, women's ability to perform mission responsibilities, all of the above reproductive and gynecological concerns potentially affect a female soldier's ability to perform, particularly the occurrence of unplanned pregnancy.

These findings indicate the pressing need for health education to increase the knowledge and skills of military women in self-care and help-seeking reproductive health behavior. The health of military women and the lifestyle choices they make will be significantly influenced by a health education and skills enhancement effort that is interesting, interactive, and designed with sensitivity to culture and military service. This study will result in the increased ability of military women to care for their own bodies and in their ability to access the military health care system appropriately, which will culminate in enhanced readiness of the U.S. Armed Forces.

Demographics of Enlisted Women

In 1973, women soldiers constituted only 1.6 percent of the active duty military population. This proportion grew to 8.5 percent by 1980, 10.8 percent by 1989 (Becraft, 1990), and 13.7 percent by 1997 (DoD Defense Manpower Data Center, 1997). According to recruiting projections, the percentage of active duty military women is expected to grow as high as 20 percent in the near future (IOM, 1995). Today, women make up a substantial part of units deployed for peacekeeping and humanitarian aid missions (U.S. Army Center for Health Promotion and Preventive Medicine and U.S. Army Research Institute of Environmental Medicine, 1996).

As of March 1997, 197,529 women were on active duty in the U.S. Armed Forces (DoD Defense Manpower Data Center, 1997). Table 1 gives a breakdown of the number and proportion of female officers and enlisted personnel by branch of the service. In each branch of the service, there were similar proportions of women among both officers and enlisted personnel. The U.S.

Air Force had the highest number and proportion of female officers, but the Army had the highest proportion of female enlisted personnel. The Marine Corps had the lowest proportions of officers and enlisted personnel who are female.

Table 1: Rank Distribution of Active Duty Women in the Four Services, March 1997		
Military Force	Officers No. Female* (% Female)	Enlisted Personnel No. Female* (% Female)
Combined Forces	30,709 (13.5)	165,087 (13.7)
Army	10,341 (13.2)	59,223 (14.8)
Navy	7,652 (13.7)	44,949 (13.0)
Marine Corps	765 (4.3)	8,168 (5.3)
Air Force	11,951 (16.0)	52,747 (17.4)

U.S. Department of Defense, Defense Manpower Data Center, 1997

Among active duty women, health care and supply/administration are the dominant types of occupations (see Table 2). However, all military personnel must be ready to perform other duties assigned in situations of deployment and combat as well as their primary tasks. With the repeal of the combat exclusion law in 1994, 91 percent of Army billets are now open to women; 96 percent of Navy billets are open to women; 93 percent of Marine Corps billets are open to women; and 99 percent of Air Force billets are open to women. Women are now allowed to fly combat aircraft and serve on combat ships. Currently, there are 186 female pilots and navigators flying combat aircraft with approximately 141 in training. The Navy has 137 women pilots and navigators flying combat aircraft with 87 pilots in training and 40 flight officers in training. The Army has 38 female pilots and navigators. The Air Force has 10 female pilots and navigators and three in training. The Marine Corps has one female pilot and 11 in training (DoD, 1996). Women are still barred from serving in combat branches such as armor, infantry, and special forces (Women's Research and Educational Institute, 1996).

Table 2: Primary Occupations of Active Duty Women, 1995		
Primary Occupations	Female Officers	Female Enlisted Personnel
Health Care	43%	15%
Administrative/Functional	18%	34%
Intelligence/Communications	3%	11%
Engineering/Maintenance/ Equipment Repair	7%	9%
Supply and Service	7%	10%
Scientific/Professional	2%	N/A
Other	20%	21%

The female military population is young. Table 3 summarizes the number and percentage of active duty women by age group and branch of service. Across all four branches, nearly half or more of the women are under the age of 26. Only around six percent of active duty women are older than 40 years of age.

Table 3: Number and Percentage of Active Duty Women in the Four Armed Services by Age Group, February 1995				
Age	Army N (%)	Navy N (%)	Marine Corps N (%)	Air Force N (%)
≤20	9,354 (13.4)	10,489 (20.0)	2,094 (13.0)	8,402 (27.0)
21-25	23,320 (33.5)	15,807 (30.1)	2,760 (30.2)	19,528 (35.6)
26-30	14,653 (21.1)	9,880 (18.8)	1,235 (21.2)	13,711 (15.9)
31-35	11,174 (16.1)	8,323 (15.9)	896 (16.7)	10,832 (11.6)
36-40	7,145 (10.3)	5,236 (10.0)	563 (12.5)	8,050 (7.3)
41-45	2,839 (4.1)	2,169 (4.1)	161 (5.2)	3,343 (2.1)
>45	1,090 (1.6)	571 (1.1)	44 (1.1)	729 (0.6)
All	69,548 (100.0)	52,475 (100.0)	7,753 (100.0)	64,595 (100.0)

(Defense Manpower Data Center, 1995)

Although the proportion of minorities in the general population of the United States is 20 percent, nearly 40 percent of active duty women were classified as belonging to a minority group (IOM, 1995). About 31 percent of active duty women were African American, five percent were Hispanic, 2.5 percent were Asian American/Pacific Islander, and approximately 1.5 percent were Native American or another minority group. Minority representation was greater among female than male active duty personnel, but this difference was mainly due to the relatively large proportion of African American women in the military. For example, 53 percent of Army women were from minority groups and African American women accounted for 44 percent of the female Army population. Approximately 39 percent of Navy women were from minority groups with 27.1 percent of them African American. The tables below show the percentages of enlisted women and women officers by race. The greatest proportion and nearly half of all enlisted Army women were African American. In the other branches of the military the greatest proportion of enlisted women were White, but African American women made up one fourth or more of enlisted women in every branch of the military. African American women also made up one fifth of all female Army officers. The proportion of African American female officers in other branches of the military was at or approaching ten percent.

Table 4: Percentages of Active Duty Women in the Four Armed Services by Race, September 1995								
Branch	Army		Navy		Marines		Air Force	
Race	Enlisted (%)	Officer (%)	Enlisted (%)	Officer (%)	Enlisted (%)	Officer (%)	Enlisted (%)	Officer (%)
White	41.1	70.8	58	82.7	58.4	84.1	67.5	82.5
Black	47.9	20	29.1	9.1	25.3	8.8	24.3	10
Hispanic	4.6	3.2	8.6	3.5	11	4.8	4.1	2
Other	6.3	6	4.4	4.6	5.2	2.3	4.1	5.5

(Defense Manpower Data Center, 1995)

N= ????

Health Issues for Military Women

Although military women have many of the same health concerns as civilian women, caution must be exercised in generalizing research on civilian women's health to military populations. Due to the high health and fitness standards for entrance and retention in the military, active duty women are generally healthier than those in the general population (Adams et al., 1993; Rothberg et al., 1990). Health issues for military women are more likely to be related to the unusual situations these women face in performing their duties. Health issues for military women may also be related to the unique characteristics of this population.

Women in the military face a host of health issues related to combat and the performance of other duties. The Defense Women's Health Research Program's 1995 Executive Summary identified several unique health issues for military women. These included dietary problems, increased vulnerability to injury and environmental stresses, difficulty maintaining gynecological health while deployed in the field, reproductive issues, and psychological stresses unique to women (IOM, 1995).

Unique health issues for military women also overlap with unique health issues for minority and younger women since large proportions of active duty women are minorities, and most are under the age of 30. Minority women, particularly African American and Hispanic women, have higher rates of certain illnesses such as cervical cancer (Rothberg et al., 1990; National Cancer Institute, 1988), coronary heart disease (Centers for Disease Control, 1997), diabetes mellitus (Expert Committee on the Classification of Diabetes Mellitus, 1997) and many sexually transmitted diseases (Alan Guttmacher Institute, 1993). Younger women are also at increased risk for sexually transmitted diseases (STDs) with 86 percent of new infections occurring among 15 to 29 year olds each year (Planned Parenthood, 1996; U.S. Public Health Service, 1990).

Gynecologic Health Issues for Military Women

Gynecologic complaints explain most of the extra sick calls and medical leave taken by active duty females relative to their male counterparts. For example, a 1988 study by the U.S. Army Research Institute of Environmental Medicine of 124 male and 186 female trainees found that 48 percent of females and 35 percent of males reported on sick call. However, when risk of illness was adjusted to exclude gynecological complaints, the percentage of females reporting on sick call was roughly equivalent to that of the males (37%). In examining the files maintained at the Naval Health Research Center, Hoiberg and White (1992) also determined that, since 1973, pregnancy-related conditions were the most common reason that active duty women were hospitalized (33.7% of all hospital admissions) followed by genitourinary disorders (10.3%), mental disorders (9.4%), and accidental injuries (6.4%). A delivery was the most frequent reason for hospitalization in Hoiberg and White's study, followed by complications of pregnancy.

Gynecologic problems also account for a large proportion of sick calls among deployed active duty women. A study by Hines (1992) of the support battalion medical units servicing the First Cavalry Division deployed to Saudi Arabia and Iraq during Operation Desert Storm found that 25.6 percent (n=458) of diagnoses recorded for women were gynecologic disorders. Dysfunctional uterine bleeding/amenorrhea was the most common gynecologic diagnosis (25.6% of all gynecologic diagnoses, n=121) and the next most common gynecologic (GYN) diagnosis was vaginitis (24.2%, n=111). Visits to obtain oral contraceptives accounted for 21.6% (n=99) of GYN sick calls in this study. Pelvic pain accounted for another 16.4 percent (n=75) of GYN sick calls in this sample of deployed women. Over one tenth (11.8%) of the women with gynecologic diagnoses and approximately three percent of all women who sought treatment needed referrals for matters such as significant menorrhagia, threatened spontaneous abortion, possible ectopic pregnancy, and severe cervical dysplasia requiring colposcopic evaluation. A study by Markenson, Raez, and Colavita (1992) of the Eighth Evacuation Hospital's medical records during Operation Desert Storm produced similar findings. Markenson and colleagues found that 19 percent of reported female outpatient visits were due to obstetrical and gynecological issues, most often for ruling out pregnancy (29%), pelvic pain (26%), obtaining birth control pills (14%), and abnormal periods (12%). Nine percent of the prescriptions written by the outpatient clinic in this study were for gynecological conditions, with birth control pills being the most common prescription (31%). Of the women admitted as inpatients, 12 percent had obstetrical- or gynecological-related diagnoses. Sixty percent of women with these types of diagnoses had pregnancy-related problems.

Despite the good initial health status of women entering the military and the subsequent provision of free health service, military women are suffering a high rate of reproductive and gynecological problems. These problems, particularly the occurrence of unplanned pregnancy, affect a military woman's ability to perform her duties. Identifying the gynecological needs of female soldiers is the first step toward meeting the reproductive health needs of enlisted women more effectively and efficiently (Cobb, 1987).

Pregnancy

According to the 1995 Department of Defense Survey of Health Related Behaviors Among Military Personnel, 18 percent of military women said they were pregnant in the past year (Bray et al., 1995). Reported rates of pregnancy for Army and Navy women in this survey were 17 percent and 16 percent, respectively. The U.S. Army Center for Health Promotion and Preventive Medicine estimated that 12 percent of female soldiers were pregnant in 1996. Data from the Navy consistently have shown about eight to nine percent of enlisted women to be pregnant (IOM, 1995). Women under age 25 account for almost two-thirds (65%) of pregnancies among active duty women. More than half of these women reported that their pregnancies were unplanned (IOM, 1995; U.S. Army Center for Health Promotion and Preventive Medicine, 1996).

Effects on readiness

The most frequent cause of premature separation from the military among women is pregnancy and parenthood (Hoiberg and White, 1992). In the Navy, 15 percent of discharges since 1973 were for reasons related to pregnancy and parenthood (Hoiberg and White, 1992). In a study conducted by Borsay-Trindle and Pass (1991), active duty Army women were asked what they would do if they found out they were pregnant next month. Fifteen percent of these women reported that they would terminate the pregnancy. Seventy-seven percent reported that they would complete the pregnancy and become parents. Only seven percent reported that they would request a discharge from the Army.

Pregnancy is also the number one reason for active duty females being nondeployable. Across services, females have a much higher rate of nondeployability compared to males, primarily because of pregnancy. The 1996 Annual Report of the President to the Congress by the Secretary of Defense reports that 10.6 percent of all servicewomen assigned to units were nondeployable compared to 4.6 percent of all servicemen assigned to units. Five percent of servicewomen assigned to units were nondeployable because of pregnancy. Therefore, the proportion of active duty females who are nondeployable due to pregnancy alone is greater than the proportion of active duty males who are nondeployable for any reason. Also, when pregnancy is factored out, the percent of nondeployable females drops to 5.6 percent, only slightly higher than that of males.

During Operation Desert Storm, pregnancy was the single largest reason for evacuation of female soldiers from the theater (Gehlbach, 1996). The majority of these conceptions occurred in country (Hanna, 1992). The impact of these evacuations should not be underestimated. Evacuation of a pregnant soldier is costly and disrupts the cohesiveness of her unit. Operations must consequently be modified, and morale is affected (U.S. Army Center for Health Promotion and Preventive Medicine, 1996). These effects are greater when the unit has many women or when it is understaffed (Rand, 1997).

Pregnant women in the military may also have a difficult time performing their duties. Weight gain during pregnancy can make lifting and other activities difficult, primarily because the farther

one is from the object being lifted, the more work is required to lift the object. Furthermore, fatigue during pregnancy can make it difficult for a woman to complete her mission, regardless of the duties she performs. If a pregnant woman is serving in a dangerous situation, the lightheadedness that often accompanies pregnancy can be problematic. Pregnant women also have an increased susceptibility to carpal tunnel syndrome, tendinitis, and other repetitive motion injuries. Nausea and vomiting experienced by a pregnant woman on a destroyer could compromise the readiness of the unit. Additionally, the frequent need to urinate, which increases as the pregnancy progresses, limits a woman's ability to be in the same place for a long time, such as on a flight deck or in the field. For this reason, the Navy's policy is that pregnant women can serve as flight controllers or air traffic controllers only until the 28th week of pregnancy because bathrooms tend to be several miles away and entering them requires maneuvering on a narrow ladder (Moore, 1996).

Effects on resources

The most frequent cause of hospitalization of military women is also pregnancy (Hoiberg and White, 1992). When an active duty female is hospitalized for pregnancy, the military pays in the form of lost salary and time in addition to medical costs. Salary and time are also lost to prenatal appointments and post-partum recovery periods for pregnant, active duty women (Borsay-Trindle and Pass, 1991). Maternity leave varies between the different branches of the service but time lost can be expected to be a minimum of four weeks. The Army offers the shortest amount of maternity leave: 4 weeks. The Navy and Marines offer 42 days maternity leave. The Air Force gives 45 days of leave (Wahl and Randall, 1996).

Other resources are expended to help active duty women who are new mothers cope with stress related to parenting and performing their duties. If the pregnancy is unplanned, these costs are likely to be higher since the pregnant servicewoman is likely to have fewer resources and less support (e.g. she is likely to be single) while being more likely to have duties that cannot be carried out during her pregnancy or postpartum. According to Borsay-Trindle and Pass (1991) the Army can expect readiness to be affected and additional resources to be used or lost in at least 84 percent of unplanned pregnancy cases, especially among unmarried servicewomen.

Health effects

In addition to costs incurred to the unit and the service as a whole as a result of pregnancies among active duty females, these pregnant woman and their fetuses may also suffer as a result of military service. Studies have shown that active duty pregnant women are at increased risk for poor pregnancy outcome. They are more likely to have pregnancy-induced hypertensive syndromes, intrauterine growth retardation, preterm complications (preterm labor and premature rupture of membranes), and cesarean deliveries (Magann and Nolan, 1991). A woman who is pregnant during deployment may also receive vaccinations or other medications to protect her from disease and biological or chemical threats. These treatments that are designed to protect the woman may injure a developing fetus (U.S. Army Center for Health Promotion and Preventive

Medicine, 1996) and result in pregnancy complications. After delivery, newborns of active duty women may also be separated from their mothers prematurely when these mothers are called into the field. For example, although breast feeding is encouraged in military hospitals, there is no policy of nondeployment for breast feeding mothers (Wahl and Randall, 1996).

The prevalence of poor pregnancy outcomes among many military women may be related to the fact that many of these women are not aware of their condition for some period of time. As a result, these women do not take adequate care of themselves or their unborn children during some portion of the pregnancy. These women will continue to be subjected to a military operation's stressors that might harm the fetus, and they will not have access to obstetrical care during deployment (U.S. Army Center for Health Promotion and Preventive Medicine, 1996). Having less prenatal care is associated with higher risks of low birth weight and neonatal mortality (Kugler et al., 1990; Messersmith-Heroman and Heroman, 1994).

Active duty women may also be at risk for having an ectopic pregnancy, an abnormal condition that occurs when a fertilized egg implants in a location other than inside a woman's uterus--often in a fallopian tube. A survey of 25,763 U.S. Navy enlisted women hospitalized for 33,130 pregnancy-related outcomes from 1982 to 1992 found that 2.7 percent of all outcomes were ectopic pregnancies (Nice, Calderon and Hilton, 1997). This compares to a civilian ectopic pregnancy rate of two percent in 1992 (NCHS, 1992), 1.6 percent in 1989 (Goldner et al., 1993), 1.4 percent in 1986 (Lawson et al., 1989), and 1.5 percent in 1984/85 (Lawson et al., 1988). Another study of active duty and military dependent women who obtained medical care at a U.S. Armed Forces Regional Medical Center in Wiesbaden, Germany from 1981 to 1985, found an ectopic pregnancy rate of 1 per 28 live births among active duty enlisted women (for every 28 live births reported, one ectopic pregnancy was reported) (Birdsong, 1987). In this study, no ectopic pregnancies were reported for female officers and the ectopic pregnancy rate for military dependents (1 per 112 live births) was close to that reported for the U.S. general population. However, Birdsong found an ectopic pregnancy rate for Army enlisted women of 1 per 27 live births and for Air Force enlisted women of 1 per 32 live births. A comparable ectopic pregnancy/live birth rate was found for Navy women (1 per 32 live births) in the study by Nice, Calderon and Hilton (1997).

Prevention as well as prompt diagnosis and treatment of ectopic pregnancy are critical since ectopic pregnancies are the leading cause of pregnancy-related death during the first trimester (Planned Parenthood, 1997) and the leading cause of all pregnancy-related deaths among African American women (CDC, 1997). Ectopic pregnancies account for nine percent of all pregnancy-related maternal deaths in the U.S. (Planned Parenthood, 1997).

Diagnostic needs

Prompt diagnosis of pregnancy can reduce morbidity and mortality among pregnant women and their fetuses due to improper or delayed care and treatment. Diagnosis of pregnancy among active duty women prior to deployment also reduces the number of women who are pregnant

during deployment and must therefore be evacuated. According to Birdsong (1987), if pregnancy is a possibility, women should be tested prior to assignment to isolated sites. Hines (1992) recommends that all women be given a pregnancy test before being deployed to isolated areas. Markenson, Raez and Colavita (1992) also recommend that, prior to deployment, soldiers be tested for pregnancy since means for diagnosing pregnancy quickly and accurately in the field are often inadequate. At present, however, an active duty woman must request a pregnancy test prior to deployment if she believes there is a possibility of pregnancy. This request may be denied, as indicated from studies of women who were evacuated during Operation Desert Storm because of pregnancy. Some of these women requested a pregnancy test prior to deployment for Operation Desert Storm and were told that they needed to wait until their period was delayed for several weeks. Many of these women needed to be evacuated from the theater once their pregnancy was confirmed (Markenson, Raez, and Colavita, 1992).

Since ectopic pregnancies are the main cause of maternal death in the first trimester and account for nine to 12 percent of all maternal deaths (Planned Parenthood, 1997; Birdsong, 1987), early detection of this type of pregnancy complication is critical. For ectopic pregnancy, a high index of suspicion and early referral or evacuation may be life-saving (Birdsong, 1987). Unfortunately, many women with an ectopic pregnancy may not be promptly or correctly diagnosed. For example, a pilot study of women seen at a military treatment facility (MTF) who presented with an ectopic pregnancy indicated ectopic pregnancy was not considered by health care providers for women who reported pain but no vaginal bleeding. This diagnostic failure was associated with a significantly increased likelihood that the patient would present with a ruptured ectopic pregnancy (Crawford and Stahl, 1995). Diagnosis of ectopic pregnancy in the field may be more problematic since equipment necessary for diagnosing ectopic pregnancies is often unavailable. Hines' 1992 study of the First Cavalry Division in Operation Dessert Storm revealed that equipment necessary to diagnose ectopic pregnancy, the pelvic ultrasound and laparoscopy, were not available in the field.

Contraception

Borsay-Trindle and Pass (1991) reported that the population least likely to be using contraceptives is unmarried females in casual relationships. Since less than half of all active duty women in the U.S. Armed Forces are married (compared with two-thirds of their male counterparts) contraception is an issue of particular importance to military women.

Approximately one third of all pregnancies among female military personnel are unplanned (IOM, 1995; U.S. Army Center for Health Promotion and Preventive Medicine, 1996). Although this unintended pregnancy rate approximates that of the civilian population (Abma et al., 1997) it is incongruent with high availability of effective contraception in the military. Studies of contraceptive use among women in the military suggest that at least two factors directly contribute to the rates of unintended pregnancy in this population: 1) a large proportion of sexually active military women who do not use a method of contraception that is at least 85

percent effective; 2) a group of sexually active military women who use effective methods of contraception incorrectly or inconsistently. For example, a survey of Navy women found that 56 percent of women reporting an unplanned pregnancy said that they used some method of birth control (IOM, 1995) indicating that these women had either used an ineffective contraceptive method or used an effective method incorrectly. A study of 432 sexually active U.S. Marine Corps female recruits graduating from training found that more than a third of the subjects did not use highly effective methods of contraception (Gerrard, 1991). In this study, 83 percent of female recruits reported usually using a method of contraception, but only 64 percent reported using a contraceptive method that is at least 85 percent effective.

The high rate of unintended pregnancies among military women may also be due to a lack of skill or knowledge in proper contraceptive use. A study by Borsay-Trindle and Pass (1991), which focused on reasons for the occurrence of unplanned pregnancy among military women, supports this hypothesis. This study found that female soldiers demonstrate an educational deficit regarding conception and contraceptives. Most subjects (75%) reported that they knew everything they needed to know about the prevention of pregnancy. However, less than half could correctly identify the mid-menstrual cycle as the most likely time to conceive and over half reported that they would benefit from a class on birth control and family planning.

Active duty women clearly have a need for training regarding appropriate contraceptive use and basic female physiology. This need for reproductive health knowledge may be stronger during deployment, when external supports and resources may be less available as health risks increase. Markenson, Raez and Colavita (1992) recommended that women be educated about birth control prior to deployment. Markenson and colleagues also recommended that women be informed that gynecological care is limited and obstetrical care is essentially non-existent in the field. Women need to know that they are at increased risk if complications of pregnancy, such as a spontaneous abortion or ectopic pregnancy, occur during deployment. They also need to realize the potential risks to a fetus if exposed to the agents present in a war zone (Markenson, Raez & Colavita, 1992).

Sexually Transmitted Diseases (STDs) Among Women in the Military

An important threat to military women's health and readiness is STD infection. Data from the 1995 Department of Defense Survey of Health Related Behaviors Among Military Personnel suggest that active duty women have higher rates of STD infection than active duty men (Bray et al., 1995). The 1995 DoD survey found that approximately 20 percent of Army, Marine Corps, and Air Force personnel have had an STD, while 25 percent of Navy personnel have had at least one STD. The DoD survey found that these proportions were higher for female enlisted personnel. Twenty-five percent of women in the Navy, Marine Corps, and Air Force have had an STD, and 30 percent of Army women have had an STD (Bray et al., 1995). Preliminary results from a large-scale survey of active duty Army personnel also indicated that 18 percent of women respondents reported at least one STD over a 2-year period (Jenkins and Nannis, 1995). Some

recent estimates of the prevalence of STDs in the general U.S. population show comparable rates of infection: about 1 in 4 annually, with about half the infections occurring in women (Donovan, 1993). However, an HIV review panel meeting held in 1995 concluded that STDs are five times more prevalent in the military than in the civilian populations in peacetime, and 30 times more prevalent during conflict (Eitzen, 1996). Whether or not rates of STD infection are higher among military personnel cannot be confirmed since, to date, reporting of STDs in the military has been very imprecise and haphazard (Eitzen, 1996). However, the available data indicate that large proportions of women in the military are likely to be infected with an STD.

STDs have a disproportionate impact on women compared to men. Due to anatomical differences, women are more susceptible to STD infection, less likely to experience early symptoms, and more difficult to diagnose with STDs. For example, the majority of women who have chlamydia or gonorrhea have no early symptoms, but these STDs, left untreated, often lead to pelvic inflammatory disease, infertility, perinatal infections, potentially fatal ectopic pregnancies and cervical cancer (Donovan, 1993; Fogel, 1995; Planned Parenthood, 1997).

Large proportions of Army and Navy active duty females also belong to groups that have been determined to be at high risk for STD infection: adolescents and individuals under 25; and African Americans and Hispanics. Two-thirds of persons who contract STDs are under 25 and one fourth are teenagers (CDC, 1993). African American and Hispanic women also have the highest rates of infection for several STDs, including genital herpes (Morris, Warren, and Aral, 1993) and HIV, and rates of STD infection are increasing rapidly in these populations (CDC, 1997).

The most common STDs in women are chlamydia, human papilloma virus (HPV), gonorrhea, genital herpes, syphilis and HIV infection (Fogel, 1995). The following sections describe these STDs in detail, including their impact on military women.

Chlamydia

Genital infection due to chlamydia is the most commonly diagnosed STD in the U.S. (CDC, 1995). About four million Americans become infected with chlamydia every year. Most are adolescents or young adults. Chlamydia is four times as common as gonorrhea and more than 30 times as common as syphilis (CDC, 1993). New cases of chlamydia also outnumber new cases of symptomatic genital herpes at least eight to one (National Center for HIV, STD & TB Prevention, 1996). An estimated 1 in 10 adolescent girls and 1 in 20 women of reproductive age are infected with chlamydia (CDC, 1997).

In a study of 476 active duty Army females who presented for Pap tests, 8.2 percent tested positive for chlamydia (Catterson and Zadoo, 1993). All of the women in this study by Catterson and Zadoo were asymptomatic and had normal pelvic examinations. Similar rates of chlamydia infection were found among a sample of female Navy recruits (Orndorff, 1991). In Orndorff's study, slightly less than 10 percent of Navy women tested positive for chlamydia cervical

infection. The sample in this study was slightly different since it included women who were symptomatic at the time of examination. These rates of chlamydia infection found in samples of Army and Navy women are high when compared to the estimated infection rate among women of reproductive age living in the United States. Even among women aged 15 to 24 tested for chlamydia in family planning clinics, the state-specific median rate of infection is only 4.6 percent (CDC, 1997).

However, the high rates of chlamydia infection found in studies of military women may be partially related to the young age of the subjects. As noted earlier, the CDC has estimated that chlamydia infection rates among adolescent girls may be as high as 10 percent. In the Catterson and Zadoo study, the mean age was 25 for the whole sample and 23.9 for those presenting with chlamydia. In the Orndorff study, the mean age was 20.4 and the median age was 19.

The high rates of asymptomatic military women infected with chlamydia found in the studies by Catterson and Zadoo (1993) and Orndorff (1991) are not surprising in view of the fact that 70 to 80 percent of women infected with chlamydia are asymptomatic (Planned Parenthood, 1997; CDC, 1995; Zimmerman et al., 1990). Asymptomatic women are not likely to seek treatment or take measures to reduce the risk of infecting their sexual partners or unborn children.

In women, untreated chlamydia infections can progress to the upper reproductive tract and may result in serious complications. Without treatment, 20 to 40 percent of women with chlamydia may develop pelvic inflammatory disease (PID) (Abma et al., 1997). Further, women with untreated chlamydia infections are at much greater risk for infertility, chronic pelvic pain, upper reproductive tract infections, tubal impairment, and ectopic pregnancy (Catterson and Zadoo, 1993; Orndorff, 1991). Prompt diagnosis of this STD is therefore critical to the health of the infected woman, her sex partners and her biological children.

Catterson and Zadoo (1993) noted that the high prevalence of chlamydia in a sample of asymptomatic women in the military makes it probable that screening military women for chlamydia would be more cost-effective than treating the complications of the disease. Both Catterson and Zadoo (1993) and Orndorff (1991) recommend routine screening for chlamydia, particularly since the Fluorescent Antibody test is so inexpensive - less than \$10 per patient in 1991 (Orndorff, 1991).

Human Papilloma virus (HPV) and condyloma

Human papilloma virus (HPV) is one of the most common causes of STDs in the United States. Experts estimate that as many as 24 million Americans are infected with HPV, and the incidence of the diseases it causes appears to be increasing (NIAID, 1997). Young age is a risk factor for HPV infection and some studies show that about one third of all sexually active adolescents have genital HPV infections (Aral and Holmes, 1991). Millions of infected people do not know that they carry HPV because they either have no symptoms or do not recognize symptoms (Planned Parenthood, 1997).

Approximately 60 types of HPV can infect the genital area. These types are divided into "high risk" and "low risk" groups based on whether they are associated with cancer. Infection with a "high risk" type of HPV is one risk factor for cervical cancer (CDC, 1992). Various strains of HPV are associated with 90 percent of cervical cancer cases, and almost 5,000 women in the U.S. die from cervical cancer each year (Fogel, 1995). No cure for HPV infection exists (Donovan, 1993).

Regular Pap tests may increase diagnosis and result in treatment of HPV infections since abnormal Pap tests are often indicators of HPV infection. Women with abnormal Pap tests should be examined further to detect and treat cervical problems (NIAID, 1997). Several new laboratory tests are available to identify specific types of HPV. These tests help a doctor determine whether the HPV infection is likely to progress to precancerous lesions or be transmitted from a pregnant woman to her newborn (NIAID, 1997).

At least six strains of HPV are known to cause genital or venereal warts (Enterline and Leonardo, 1989). Genital warts, or condyloma, is one of the most common and infectious STDs diagnosed in outpatient clinics in the U.S. (Aral and Holmes, 1991). Between 500,000 and one million new cases of genital warts occur every year (Planned Parenthood, 1997).

Genital warts may be papillary or flat. Flat warts are less visible and may not be noticed. Both types of warts are often painless and may therefore be ignored (Fogel, 1995). However, it is important for individuals infected with genital warts to recognize the symptoms and be diagnosed as soon as possible so that they can avoid infecting their partners. Eighty-five to 90 percent of exposed sexual partners will develop lesions (Lynch, 1985). A woman who thinks she may have genital warts should also see a doctor so that similar-looking infections or conditions can be ruled out or treated. Women with genital warts will also need to be examined for possible HPV infection of the cervix (NIAID, 1997).

Gonorrhea

Gonorrhea is the most commonly reported communicable disease today (Fogel, 1995). Reports indicate that rates of gonorrhea infection in the U.S. population have been declining since 1975. In 1996, 325,883 new cases of gonorrhea were reported, a 17 percent drop from the 1995 reported infection rate in the U.S. (CDC, 1997). The majority of individuals contracting gonorrhea are 15 to 24 years old (Fogel, 1995) with the highest rates of infection occurring among females aged 15-19 (CDC, 1997). Prevalence rates for all sexually active females in the U.S. have been estimated to range from three percent to 18 percent (May and Mahlmeister, 1990; Shafer and Sweet, 1989). Rates of infection are higher among inner-city populations (Fogel, 1995); and some studies indicate that rates may be increasing among African Americans (Aral and Holmes, 1990).

Catterson and Zadoo (1993), in their study of Army women presenting for routine Pap screening, reported a low prevalence rate of gonorrhea among military women. Because of the low

prevalence rate they found and the likelihood that gonorrhea will produce pelvic symptoms, Catterson and Zadoo did not recommend screening all military women for gonorrhea. However, other studies indicate that symptoms of gonorrhea in women are often nonspecific and mild or absent (Fogel, 1995). According to national estimates, 50 percent of women with gonorrhea have no symptoms (CDC, 1997). Therefore, many women are not aware that they have gonorrhea, and many physicians may not diagnose this STD if they do not screen for it (Eitzen, 1996). Without early detection and treatment, 10 to 20 percent of women with gonorrhea will develop PID (Hook and Handsfield, 1990). However, when caught early, gonorrhea can easily be treated with antibiotics.

Genital herpes

Genital herpes is a contagious infection caused by the herpes simplex virus (HSV). Genital herpes affects an estimated 23 percent of adult Americans. Scientists have estimated that about 30 million persons in the United State may have a genital HSV infection (CDC, 1997). As many as 500,000 new cases are believed to occur each year (NIAID, 1997). The most severe form of genital herpes is usually caused by the herpes simplex virus 2 (HSV-2). Prevalence rates for HSV-2 infection are higher in women, particularly minority women. A nationally representative serologic survey by Fleming and colleagues (1997) found an HSV-2 seroprevalence of 18.4 percent in white women (nearly 1 in 5) and 51.4 percent in African American women, a difference of more than 30 percent.

Genital herpes is usually acquired through sexual contact with someone who has an outbreak of herpes sores in the genital area. However, many cases of genital herpes are acquired from people who do not know they are infected or who have no symptoms at the time of the sexual contact (NIAID, 1997). People with oral herpes can also transmit the infection to the genital area of a partner during oral-genital sex. An uninfected individual has about a 75 percent chance of contracting herpes during intimate contact with someone actively shedding the virus.

Most infected persons never recognize the symptoms of genital herpes; some will have symptoms shortly after infection and never again. A minority of those infected will have recurrent episodes of genital sores. Some medications have been developed to minimize the frequency and intensity of these outbreaks, but genital herpes has no cure. Symptoms of HSV infection are frequently more severe in people with weakened immune systems (CDC, 1997).

Syphilis

In many U.S. cities syphilis rates are on the rise. In 1990, about 134,000 cases were reported to the U.S. Public Health Service (NIAID, 1997). On average, 101,000 new cases of syphilis are reported each year (CDC, 1997). Syphilis cases increased dramatically from 1985 to 1990 among women of all ages. An analysis of 1993 data has shown that rates of syphilis were higher among female than among male adolescents: rates among females were more than twice as high as rates among males in the 15 to 19 age group. African American women have syphilis rates that

are 7 times greater than the female population as a whole (CDC, 1997).

Medical experts divide the course of this disease into four stages--primary, secondary, latent, and tertiary (late). Symptoms in the early stages of syphilis can be very mild, and many people do not seek treatment when they first become infected. An infected person who does not get treatment may infect others during the first two stages and during the early latent stage, which usually lasts 1 to 2 years. Women in the first three stages of syphilis infection are very likely to infect any children they bear. An estimated 3,400 new cases of congenital syphilis (babies born who need treatment for syphilis) are reported each year in the U.S. Fetal or neonatal death occurs in up to 40 percent of children born to women with untreated syphilis. As many as 40 percent of live-born infants of women with early-stage, untreated syphilis suffer irreversible health consequences. Infections among infants are largely preventable if women receive appropriate diagnosis and treatment during prenatal care (CDC, 1997).

In the last stage, untreated syphilis, although not contagious, can cause serious heart abnormalities, mental disorders, blindness, other neurological problems, and death in the infected person (NIAID, 1997). Early diagnosis and treatment of syphilis is therefore critical to averting these long term effects. Treatment of syphilis in the first through third stages is also more likely to be effective.

HIV infection

The DoD currently considers the prevalence of HIV infection among military personnel far too small to exert a significant impact on readiness (Secretary of Defense, 1996). The total number of military personnel with permanent limitations, including HIV positivity, is very small--around three-tenths of one percent of the active force. In 1997, only 1.5 percent of all nondeployable males and 0.2 percent of all nondeployable females were nondeployable because of HIV positivity (DoD Secretary of Defense, 1997).

HIV infection is considered to be a permanent medical limitation among military personnel and a reason for nondeployability. Therefore, prevention of HIV infection is desirable to maintain the health and readiness of military personnel. HIV infection among active duty females is primarily a sexually transmitted disease, since intravenous drug use in this population is low (IOM, 1995). Therefore, overall prevention of STD infection among active duty females can be expected to prevent HIV infection.

Prevention of more common STDs can also be expected to reduce the prevalence of HIV among military women since STD infection, in general, increases a woman's risk of acquiring or transmitting HIV. In particular, the presence of genital ulcers, such as those produced by syphilis and herpes; or the presence of an inflammatory STD, such as chlamydia or gonorrhea, may facilitate HIV transmission (CDC, 1997).

Pelvic Inflammatory Disease (PID)

Pelvic inflammatory disease (PID) is one of the most serious complications of STDs (Fogel, 1995) as well as one of the most common STD complications among women. Girls aged 15 to 19 have the highest rate of hospitalization for both acute and chronic PID (CDC, 1993).

PID is an upper reproductive tract infection in women, which often develops when STDs go untreated or are inadequately treated. Each year, PID and its complications affect more than 750,000 women. PID can cause chronic pelvic pain or harm the reproductive organs. Permanent damage to the fallopian tubes can result from a single episode of PID and is more common after a second or third episode. Scarring resulting in infertility will occur in about 20 percent of women with PID. Chronic pelvic pain will occur in 18 percent of women with PID. Potentially fatal ectopic pregnancy will occur in 9 percent of women with PID (NCHSTP, 1996).

Risk Factors for Contracting STDs Among Military Women

Although many aspects of military life may put active duty women at increased risk for STD infection, these risk factors can be mediated by any intervention that reduces the behaviors that put these women at increased risk for STD infection. These "high-risk" behaviors include:

- Sex with infected partners
- Frequent sexual encounters
- Numerous sexual partners (Bray et al., 1995)
- Unprotected sex
- Anal intercourse

(U.S. Army Center for Health Promotion and Preventive Medicine, 1996).

The main high risk behavior for acquiring an STD is unprotected sexual contact, particularly if this occurs frequently (McGrane et al., 1990). Only forty percent of unmarried military personnel who are sexually active reported using a condom the last time they had intercourse (Bray et al., 1995). This rate was lower than the Healthy People 2000 objective of 50 percent condom use at the last episode of sexual intercourse. Of military personnel who had at least one sexual partner in the past 12 months, 44.8 percent reported using a condom every time or most of the time within the past 12 months, 28.3 percent used condoms one half of the time or less often, and 26.9 percent never used a condom at all (Bray et al., 1995).

The relationship of substance use and abuse to high-risk sexual behavior

Another risky behavior, the use of alcohol and drugs, has also been linked to increased high risk sexual behavior (DHHS, Secretary of Health and Human Services, 1993). Several studies have produced findings suggesting that alcohol and drugs impair judgment and reduce inhibition of risky behavior (Critchlow, 1986; Leigh, 1990c; Reinerman and Leigh, 1987). According to a

study by Hingson and colleagues (1990) of 1,773 Massachusetts teenagers, drug and alcohol use was associated with unsafe sex. Heavy drinkers (those consuming five or more drinks in a day) were about three times less likely than non-drinkers to report regular condom use. Respondents who had not used marijuana during the past month were twice as likely as those who had to use condoms. Hingson's study also revealed that 16 percent of the study participants were less likely to use condoms during a sexual encounter that immediately followed drinking, and 25 percent were less likely to use condoms following marijuana use. A study by Strunin and Hingson produced similar findings (1992). Eitzen's (1996) study of female U.S. Army recruits also found that recruits who drank alcohol were less likely to use condoms than recruits who did not drink alcohol. In this study, recruits who drank were found to be at greater risk for STDs because they reported having more sexual partners than non-drinkers.

After controlling for education, age, sex, and race, Bray, Marsden, and Peterson (1991) found that military personnel were less likely to use drugs than civilians but were more likely to consume alcohol and were nearly twice as likely to drink heavily. Among military personnel, 20.8 percent were heavy drinkers compared to 11 percent of civilians; and 6.3 percent of military women were heavy drinkers but only 3.3 percent of civilian women were. A heavy drinker is defined as someone who consumes five or more drinks per typical drinking occasion at least once a week. Military personnel who are 18 to 25 years old are most likely to drink (29.6% are heavy drinkers; 32.1% of males and 7.6% of females in this age group are heavy drinkers).

Recent DoD efforts to reduce the use of alcohol and cigarettes among military personnel in order to meet the Healthy People 2000 goals may be having some effect. The 1995 DoD Survey of Health Related Behaviors Among Military Personnel (Bray et al., 1995) showed that use of alcohol, drugs, and cigarettes by military personnel was declining. Heavy drinking declined from 20.8 percent in 1980 to 17.1 percent in 1995, and infrequent/light drinkers increased from 25.6 percent to 39.7 percent. Use of an illicit drug decreased from 27.6 percent to three percent over the same time period. Drug use may be lower due to the random drug testing that occurs in the military and the fact that one is subject to discharge if found using drugs. However, the percentage of military personnel defined as heavy drinkers is still well above that of their civilian counterparts (17.1 versus less than 11 percent in 1995). Bray, Marsden, and Peterson (1991) hypothesize that there are "certain aspects of military life (that) may foster use and/or that military policies and programs directed toward alcohol and cigarette use have not been effective" (p. 869).

Other Factors Contributing to STD Infection Among Military Women

All factors that weaken a woman's immune system, such as stress, substance abuse, poor nutrition, and other infections, can increase her susceptibility to STDs. Cigarette smoking, in particular, has been shown to weaken the immune system, increasing a woman's susceptibility to a variety of diseases, including STDs. Smoking has been related to human papilloma virus (HPV), and to the development of cervical and other anogenital cancers (Daling et al., 1992; Rabkin, Biggar, Melbye, and Curtis, 1992; Daling et al., 1986). Women in the military are more

likely than civilians to smoke (45.0% and 32.1%, respectively), while military and civilian men are about equally likely to smoke (43.9% and 40.1%, respectively) (Ballweg, 1989). Military women are also twice as likely as civilian women to smoke heavily (30.0% vs. 16.0%). A heavy smoker is defined as someone who smoked one or more packs of cigarettes per day over the past 30 days. Unlike the general population, women and men in the military are equally likely to smoke (Ballweg and Bray, 1989).

Active duty women may also be at increased risk for exposure to external stressors that reduce the strength of their immune systems and increase their vulnerability to all kinds of diseases. For example, changes in housing, sanitation, and meals; adverse weather conditions; limited transportation; and limited medical care may adversely affect the health of deployed personnel and increase their susceptibility to STDs and other infectious diseases (Eitzen, 1996). Exposure to unfamiliar diseases in foreign countries and chemical and biological threats compound the vulnerability to disease.

Deployment may put military women at further risk for contracting an STD for several reasons. First, deployed military personnel may be more likely to engage in behaviors that put them at risk for contracting STDs because they are separated from the support and guidance of family and community while dealing with numerous additional stressors. This situation may lead military personnel to turn to other individuals in their new environment for support and affection, and many will do this through sexual encounters. Military personnel deployed to countries with high STD rates will also be at increased risk for acquiring an STD (Eitzen, 1996).

Other Genitourinary Problems Among Military Women

According to the U.S. Army Center for Health Promotion and Preventive Medicine (1996) genitourinary infections are a major health concern among active duty females, since they affect readiness. In 1987 vaginitis (including STDs) was the leading GYN pathology diagnosed for women in the military (Cobb, 1987). Cobb found that vaginitis was diagnosed in 30 percent of the Troop Medical Clinic (TMC) visits and 36 percent of field visits. Another frequent diagnosis was urinary tract infection (UTI).

Hanna (1992), in his study of 577 gynecological patients during Operation Desert Storm, also found vaginitis and urinary tract infections to be common among deployed females. Hanna found that, after pregnancy and birth control pill refills, the most common diagnoses among active duty females in the theater were vaginitis, cervicitis, amenorrhea secondary to oral contraceptive use or stress, and ovarian pain. Vaginal discharge was the most frequent presenting complaint, and was most often due to simple Monilia infections (yeast).

Risk Factors for Vaginal Infections and UTIs

Many vaginal infections and some infections of the urethra are caused by or related to sexually

transmitted disease. The most common cause of vaginitis symptoms among women of childbearing age, bacterial vaginosis, is frequently transmitted through sexual activity (NIAID, 1992). However, the role of sexual activity in the development of bacterial vaginosis is not yet well understood, and the infection has been found among women who are not sexually active (NIAID, 1992). Research indicates that both sexual activity and use of spermicidal agents may increase the risk of vaginal colonization with bacteriuria and *E. coli* (Hooton et al., 1994; Hooton et al., 1991; Strom et al., 1997; Fihn et al., 1986). Vaginitis can also be caused by the parasite *trichomonas vaginalis*, which is sexually transmitted. The resulting infection, trichomoniasis, is a common STD that affects two to three million Americans yearly. In women, trichomoniasis most often causes vaginal symptoms but may also infect the urethra (NIAID, 1992). Other STDs such as gonorrhea, may also cause vaginal symptoms. Therefore, a woman who is at risk for STD infection may also be at risk for and experience higher rates of genitourinary tract infections.

Poor hygiene can lead to or aggravate bacterial vaginosis as well as vulvovaginal candidiasis (the cause of most yeast infections). Limited availability of showers may make it difficult for active duty females in the field or aboard ship to maintain good hygiene. Hygiene problems are exacerbated when women are menstruating. Numerous women who were deployed in Operation Desert Storm complained that it was difficult to maintain good hygiene while menstruating due to a limited availability of showers (Markenson, Raez, and Colavita, 1992). Fungal vaginitis (usually caused by candidiasis) is also more common when tight pants are worn, and the battle-dress uniform worn by all Army soldiers has a short crotch (Hawley-Bowland, 1996).

Poor hygiene can also lead to UTIs. Certain strains of bacteria that are allowed to accumulate in the genitourinary area infect either the vagina and/or the urethra. When these bacteria enter the urinary tract, they may be removed through regular urination. However, military personnel in the field may not have easy access to toilets, and many deployed women have mentioned their discomfort with urinating without a toilet (Hawley-Bowland, 1996). Lack of private elimination facilities may lead many women in the field to retain their urine for long periods, increasing their chances of bacterial growth within the urinary tract.

Other risk factors for UTIs are frequent intercourse (Hooton et al., 1996; Hooton et al., 1991; Foxman and Chi, 1990; Remis et al., 1987), use of antimicrobials (Lidefelt et al., 1991) and use of spermicides, particularly nonoxynol-9 which can irritate the vaginal wall (Fihn et al., 1996; Hooton et al., 1994; Hooton et al., 1991; Hooton et al., 1989; Fihn et al., 1986).

Education needs

A study by Cobb (1987) indicated that many cases of vaginal and urinary tract infection among active duty women may result from a lack of knowledge regarding self-care and health maintenance among female military personnel. Education regarding risk factors for genitourinary infections is critical to the prevention of these disorders. Prevention of genitourinary infections among active duty females in the field is especially important because

general medical officers often have neither the necessary background nor the basic supplies to diagnose and treat many of these infections in the field (Hanna, 1992).

Military women also need to know how to recognize symptoms of vaginitis and UTI so that they may obtain prompt treatment and testing for more severe infections that may have either precipitated the infection (such as some STDs) or resulted from the infection (such as kidney infections from untreated UTIs). Women need to know that any vaginal discomfort, sores, swelling of lymph nodes in the groin, unusual vaginal discharge, painful or burning urination, or lower abdominal pain requires prompt medical attention (U.S. Army Center for Health Promotion and Preventive Medicine, 1996).

Menstrual Disorders and Dysfunctional Uterine Bleeding (DUB)

Another problem common among active duty women is Dysfunctional Uterine Bleeding (DUB), which is defined as abnormal endometrial shedding that is not attributed to organic disease, pelvic pathology, or pregnancy. Petit (1996) identified DUB as a significant problem in active duty women. This finding is supported in a study by Hines (1992) of support battalion medical records for units servicing the First Cavalry Division deployed during Operation Desert Storm. In this study dysfunctional uterine bleeding/amenorrhea was found to be the most common gynecologic diagnosis (25.6% of all gynecologic diagnoses, n=121). Hanna (1992) also reviewed records of outpatient visits from the 312th Evacuation Hospital during Operation Desert Storm. He found abnormal bleeding to be the second most common gynecologic complaint.

Jet lag, decreased food intake, enhanced energy expenditure, or psychological stress may also result in changes to or disruption of a woman's menstrual cycle (U.S. Army Center for Health Promotion and Preventive Medicine, 1996). Similarly, Hines (1992) reports that women may experience dysfunctional bleeding or become amenorrheic when encountering stressors (e.g., divorce, a death in the family, or a separation), a change in environment, or when engaging in strenuous exercise. Additionally, since many deployed women reported stopping oral contraception, some atypical bleeding among these women was likely due to hormonal changes caused by discontinuing oral contraception.

Alterations in the menstrual cycle or temporary cessation of menstruation generally do not have long-term implications for fertility or overall health. However, frequent or excessive bleeding or cramping may impair a woman's ability to effectively perform her duties. Individual women might also misinterpret changes in their menstrual cycles as an indication of decreased fertility and therefore put themselves at increased risk for unintended pregnancy (U.S. Army Center for Health Promotion and Preventive Medicine, 1996).

Active duty women need to be able to accurately interpret changes in their menstrual cycles in order to seek appropriate treatment and to recognize that impaired menstruation is not necessarily

related to impaired fertility. The study by Markenson and colleagues (1992) also reveals that women need to be made aware of the importance of continuing birth control during deployment, even if they are temporarily sexually inactive, in order to avoid sudden hormonal changes and disruptions in their menstrual cycle.

Military Health Care for Women

All military women receive numerous health services specific to women's health needs. All active duty women are required to have pelvic exams, Pap smears and clinical breast examinations during accession physicals. This requirement has led to high rates of Pap screening (93% had a Pap within the past three years: Crawford & Stahl, 1996). However, follow up for abnormal Pap smears among active duty women is less than ideal. A DoD study showed that, although the DoD standard for notification of abnormal Paps is less than 2 weeks, active duty women are being notified an average of 33 days after the test. Follow up care occurred an average of 59 days after the initial Pap (Crawford & Stahl, 1996)

During annual exams, active duty women are routinely offered counseling on family planning and contraception alternatives (IOM, 1995; DoD, 1996). *Staying Healthy in Deployment: A Female Soldier's Guide*, a 1996 publication, also states that, prior to deployment, an OB/GYN exam is required, and that this exam shall include a pregnancy test, counseling on contraceptives, information on preventing STDs, and reporting of prescriptions currently taken (including oral contraceptives). In order to maintain the health of its service members, the Armed Forces provide health services free of charge to the patient.

Staying Healthy in Deployment: A Female Soldier's Guide (DoD, 1996) also states that annual HIV screenings and hepatitis B immunizations are provided as needed. However, a Quality Management Review (QMR) by the DoD found that only 20 percent of active duty personnel with two or more documented STDs received a hepatitis B immunization (Crawford & Stahl, 1996). The QMR also found low screening rates for STDs among active duty personnel. Only 29 percent of active duty personnel surveyed in the QMR received STD screening or were routinely advised and provided with follow up or referral.

A survey by Bray and colleagues (1995) found that the majority of military women reported easy access to OB/GYN care, such as pelvic exams or Pap smears. Deployed women may be an exception to this finding as indicated by a study of women who served in Operation Desert Storm. Eleven percent of these women reported that they did not know that gynecological care was available in the theater (Markenson, Raez, and Colavita, 1992). A DACOWITS study of 2,400 active duty men and women stationed in Alaska, Korea, Japan, Okinawa, Hawaii and Guam also noted that military women in all services throughout the Western Pacific cited gynecological care at their bases as unavailable or poor (Borlik, 1997).

Satisfaction with Military Health Services

In the 1989 Department of Defense Women's Health Survey, sixty-two percent of military women reported that they were satisfied with their current health care. Women in the Army were most dissatisfied, with 25 percent being either dissatisfied or very dissatisfied with their health care. The majority of active duty women (68%) reported being satisfied or very satisfied with the OB/GYN care treatment they receive. Officers were much more likely to be satisfied or very satisfied compared to enlisted personnel. Only about half of enlisted women (58%) were satisfied or very satisfied with follow-up care for OB/GYN issues. Also, in spite of the free medical services provided by the military, 45 percent of military women reported preferring a civilian health care provider (Mahoney & Wright, 1989).

Results of the 1995 Department of Defense Survey of Health Related Behaviors Among Military Personnel (Bray et al., 1995) indicated that the level of satisfaction has not changed. In this study, 62 percent of military women were very satisfied or satisfied with the quality of OB/GYN care they received in 1995. Unlike the 1989 Department of Defense Women's Health Survey, officers responding to this 1995 survey were less likely than enlisted personnel to be satisfied with care received.

Women's Health Education in the Military

A small amount of health education material specifically developed for military women deals briefly with reproductive health issues. For example, *Sustaining Female Soldiers' Health and Performance During Deployment: Guidance for Small Unit Leaders* and *Staying Healthy in Deployment: A Female Soldier's Guide*, both produced by the U.S. Army Center for Health Promotion and Preventive Medicine (1996), provide basic information on pregnancy risks during deployment, hormonal contraception and condoms, STD prevention, prevention of some vaginal infections, common menstrual cycle disruptions, and breast self-examination. The guide for soldiers also recommends obtaining an annual gynecological exam.

In general, the type and level of health education received by military women varies by location and is not well documented. Anecdotal information from conversations with military women and discussions with personnel at the U.S. Army Center for Health Promotion & Disease Prevention have revealed that efforts to provide health education for military women across the country range from none to fairly extensive. Although most recruits are exposed to some health information during basic training, this information deals primarily with hygiene issues and First Aid. Many military women do not receive instruction or information that deals with their unique health concerns. The lack of literature published about the reproductive health of military women suggests that there has been little or no evaluation of the health education that military women receive.

A recent study indicated that military women wanted more health education. Eitzen (1996) found that 66 percent of a sample of female active duty U.S. Army recruits stated that they would be interested in attending a class or workshop on preventing STDs. Almost 48 percent of this sample also said that they would like to attend a class on contraception.

Many military women are in their late teens or early twenties, which puts them at high risk for unplanned pregnancy and STD infection. This period in their lives is frequently the first time that they are away from their families and known sources of support. Although most young women in the U.S. have received some type of reproductive health education before the age of 18 (CDC, 1997) the type and amount of education received varies greatly. For these reasons, military women would likely benefit from in-depth education regarding reproductive and gynecological health issues.

Conclusions and Recommendations

More women are serving in the U.S. Armed Forces than ever before. These women are increasingly likely to serve in high ranking, high skill, specialized and combat support positions that are critical to the readiness of their units. These women are not easily replaceable, and, for this reason, their health must become a priority. However, the military remains a male dominated institution. For this reason, health issues unique to women have not been adequately addressed in the military. In beginning to address women's health issues, the military must be aware of the unique characteristics of active duty women. Women in the military are relatively young and ethnically diverse, with large numbers of minority, particularly African American women, currently on active duty. Women's health issues most relevant to young and minority populations must be given priority in the military. In the relatively young, healthy population of military women, reproductive health issues dominate, including pregnancy, sexually transmitted diseases, vaginal infections and menstrual disorders. Unintended pregnancy may be the most critical health issue for women in today's military, primarily because of its significant impact on readiness/deployability; but also because of the often negative impact of military demands on the health of a pregnant woman and her unborn child. Sexually transmitted disease is also a major health concern for women in the armed forces. Historically, STDs have been a health issue for military personnel, in general. STDs present a more critical health issue for military women, however, in view of the fact that women are at increased risk of STD infection both because of physiological differences and because they are less likely than men to use condoms at each sexual encounter. Finally, vaginitis and menstrual disorders, which are experienced by most women at some point in their lives, present special problems for military women for two reasons. First, the active duty lifestyle may place women at increased risk for vaginitis and menstrual disorders, especially during deployment. Second, common gynecological complaints such as vaginitis and menstrual problems can interfere with a soldier's or sailor's ability to effectively carry out her duties, which often involve physical demands far beyond those of the average, working, civilian woman. To date, the military has developed no system or tool for effectively educating and training enlisted women across sites to deal with common health concerns such as

pregnancy, contraception, STDs, vaginitis and menstrual complaints.

Researchers on military women's health have offered a number of specific recommendations for improving health education and care of active duty women. For example:

- ▶ Troops should be educated on what to do if a condom breaks, a diaphragm slips, or if unprotected intercourse occurs (Gehlbach, 1996).
- ▶ Women need better training on the importance of pelvic exams (Eitzen, 1996). Eitzen found that only 39.7 percent of women in her sample reported having an annual pelvic exam, and 66 percent of the respondents said that they were not going to alter their behavior on getting annual pelvic exams.
- ▶ Markenson, Raez, and Colavita (1992) recommend that a predeployment gynecologic screening process be developed which includes a discussion of contraception. Any gynecological problems that would affect performance in the field could then be evaluated and treated before deployment. "This would help eliminate many of the clinic visits, improve women's health, and help preserve the fighting force during wartime" (Markenson, Raez and Colavita, 1992, p. 613).
- ▶ Researchers on the health of women in the military consistently recommend that active duty women be tested for pregnancy prior to deployment (Hines, 1992; Markenson et al., 1992; Birdsong, 1987).
- ▶ Effective health promotion should be comprehensive, covering cigarette smoking, alcohol consumption, sleep habits, nutrition, and other topics (Pokorski, 1992). Classes on specific topics also should be offered (Pokorski, 1992).
- ▶ Health promotion programs offered at a location that is convenient are likely to increase the number of people using these programs. Pokorski (1992) recommends offering the program at the worksite.

Health promotion is important to the military in order to reduce costs of providing health care, which is particularly crucial during these times of decreasing defense budgets. An intervention designed to improve the health behaviors of enlisted women can also be expected to help the military reach the *Healthy People 2000* goals for rates of behaviors such as condom use among sexually active, single people (currently 40.4% among military personnel. *Healthy People 2000* goal is 50%).

References

- Abma, J., Chandra, A., Mosher, W., Peterson, L., Piccinino, L. (1997). Fertility, family planning, and women's health: New data from the 1995 National Survey of Family Growth. National Center for Health Statistics. Vital and Health Statistics 23(19).
- Adams, M. M., J. A. Read, J. S. Rawlings, F. B. Harlass, A. P. Sarno, and P. H. Rhodes (1993). Preterm delivery among black and white enlisted women in the United States Army. Obstetrics & Gynecology 81(1), pp. 65-71.
- Alexander, L. L. and LaRosa, J. H. (1994). New Dimensions in Women's Health. Boston: Jones & Bartlett, p. 304.
- Aral, S. and Holmes, K. (1991). Sexually transmitted diseases in the AIDS era. Scientific American 264(2), pp. 62-69.
- Aral, S. and Holmes, K. (1990). Epidemiology of sexual behavior and sexually transmitted diseases. In K. Holmes, P. Mardh, P. Sparling, P. Wiesner, W. Cates, S. Lemon, W. Stamm (eds.), Sexually Transmitted Diseases (2nd edition), New York: McGraw-Hill, pp. 19-36.
- Ballweg, J. A. (1989). Comparison of health habits of military personnel with civilian populations. Public Health Report 104, pp. 498-509.
- Ballweg, J. A. and Bray, R. M. (1989). Smoking and tobacco use by U.S. military personnel. Military Medicine, pp. 165-168.
- Becraft, C. (1990). "Facts About Women in the Military, 1980-1990." Washington, D.C.: Women's Research and Education Institute.
- Birdsong, W. M. (1987). Ectopic pregnancy in a military population. Military Medicine 152(10), pp. 525-526.
- Borlik, A. K. (1997). Military personnel cite similar issues, concerns. American Forces Press Service. Washington, D.C.: Defense Technical Information Center.
- Borsay-Trindle, L. A., and C. M. Pass (1991) Unplanned pregnancy among active-duty Army females as a readiness issue. Military Medicine 156, pp. 82-86.
- Bray, R. M., Kroutil, L. A., Wheelless, S. C., Marsden, M. E., Bailey, S. L., Fairbank, J. A. and Harford, T. C. (1995). 1995 Department of Defense Survey of Health Related Behaviors Among Military Personnel. Research Triangle Park, NC: Research Triangle Institute.

- Bray, R. M., Marsden, M. E., and M. R. Peterson (1991). Standardized comparisons of the use of alcohol, drugs, and cigarettes among military personnel and civilians. American Journal of Public Health 81(7), pp. 865-869.
- Brunader, R. E. A., Brunader, J. A. and Kugler, J. P. (1991). Prevalence of cocaine and marijuana use among pregnant women in a military health care setting. Journal of the American Board of Family Practice 4, pp. 395-398.
- Catterson, M. L. and Zadoo, V. (1993). Prevalence of asymptomatic chlamydial cervical infection in active duty army females. Military Medicine 158, pp. 618-619.
- Centers for Disease Control and Prevention, Division of STD Prevention (1997). Sexually Transmitted Disease Surveillance, 1996. Atlanta: U.S. Department of Health and Human Services, Public Health Service.
- Centers for Disease Control and Prevention, Division of STD Prevention (1995). Sexually Transmitted Disease Surveillance, 1994. Atlanta: U.S. Department of Health and Human Services, Public Health Service.
- Center for Disease Control and Prevention, Division of STD Prevention (1993). Division of STD/HIV prevention annual report. Atlanta: U.S. Department of Health and Human Services, Public Health Service.
- Center for Disease Control and Prevention, Division of STD/HIV Prevention (1992). 1991 Annual Report. Atlanta: U.S. Department of Health and Human Services, Public Health Service.
- Cobb, C. E. (1987). Chief complaints, contraceptive use and diagnoses of female soldiers in ambulatory GYN clinic. Military Medicine 152, pp. 70-71.
- Crawford, R. S. and Stahl, S. M. (1997). An Evaluation of Delivery and Follow-up of Clinical Preventive Services in Military Treatment Facilities, January 1990-April, 1995. Rockville, MD: FMAS Corporation.
- Crawford, R. S. and Stahl, S. M. (1995). Clinical Pilot Review: Ectopic Pregnancy. Rockville, MD: FMAS Corporation.
- Critchlow, B. (1986). The powers of John Barleycorn: Beliefs about the effects of alcohol on social behavior. American Psychologist 41, pp. 751-764.
- Daling, J. R., Sherman, K. J., Hislop, T. G., Maden, C., Mandelson, M. T., Beckmann, A. M., Weiss, N. S. (1992). Cigarette smoking and the risk of anogenital cancer. American Journal of Epidemiology 135(2), pp. 180-189.

- Daling, J. R., Sherman, K. J., Weiss, N. S. (1986). Risk factors for condyloma acuminatum in women. Sexually Transmitted Diseases 13, pp. 16-18.
- Department of Defense, Defense Manpower Data Center (1997). "Department of Defense Active Duty Military Personnel by Rank/Grade." Arlington, VA: Defense Manpower Data Center.
- Department of Defense, Secretary of Defense (1997). Annual Report to the President and Congress. Washington, D.C.: Defense Technical Information Center.
- Department of Defense, Secretary of Defense (1996). Annual Report to the President and Congress. Washington, D.C.: Defense Technical Information Center.
- Department of Defense (1996). "Women in Defense -- DoD Leading the Way." Washington, D.C.: DoD.
- Department of Health and Human Services, Public Health Service (1990). Healthy People 2000: National Health Promotion and Disease Prevention Objectives. Washington, D.C.: U.S. Department of Health and Human Services.
- Department of Health and Human Services, Secretary of Health and Human Services (1993). Eighth Special Report to the U.S. Congress on Alcohol and Health, Washington, D.C.: U.S. Department of Health and Human Services.
- Donovan, P. (1993). Testing Positive: Sexually Transmitted Diseases and the Public Health Response. New York: The Alan Guttmacher Institute.
- Edgar, T., Freimuth, V. S., and Hammond, S. L. (1988). Communicating the AIDS risk to college students: The problem of motivating change. AIDS and Public Policy Journal 4, pp. 3-9.
- Eitzen, J. P. (1996). Sexually transmitted diseases: Risk behaviors of female active duty U.S. Army recruits. Unpublished doctoral dissertation, University of Maryland, Department of Health Education, College Park, MD.
- Enterline, J. and Leonardo, J. (1989). Condylomata cuminata (venereal warts). Nurse Practitioner 14(40), pp. 8-16.
- Expert Committee on the Diagnosis and Classification of Diabetes Mellitus (1997). Report of the Expert Committee on the diagnosis and classification of diabetes mellitus. Diabetes Care 20, pp. 1183-97.

- Fihn, S. D., Boyko, E. J., Normand, E. H., et al. (1996). A prospective study of risk factors for symptomatic urinary tract infection in young women. New England Journal of Medicine, 335, pp. 468-474.
- Fihn, S. D., Johnson, C., Pinkstaff, C., et al. (1986). Diaphragm use and urinary tract infection: Analysis of urodynamic and microbiological factors. Journal of Urology 136, pp. 853-856.
- Fleming, D. T., McQuillan, G. M., Johnson, R. E., Nahmias, A. J., Aral, S. O., Lee, F. K., and Louis, M. E. (1997). Herpes simplex virus type 2 in the United States, 1976 to 1994. The New England Journal of Medicine 337(16), pp. 1105-11.
- Fogel, C. (1995). Sexually transmitted diseases. In C. Fogel and N. Woods (eds.), Women's Health Care, a Comprehensive Handbook. Thousand Oaks, CA: Sage, pp. 571-609.
- Foxman, B. and Chi, J. W. (1990). Health behavior and urinary tract infection in college-aged women. Journal of Clinical Epidemiology 43, pp. 329-337.
- Gehlbach, D. (1996). Contraceptive needs, complications, and new directions for research. Women's Health Issues 6(6), pp. 355-358.
- Gerrard, M., Gibbons, F. X., and Warner, T. D. (1991). Effects of reviewing risk-relevant behavior on perceived vulnerability among women marines. Health Psychology 10(3), pp. 173-179.
- Gold, R. S., Karmiloff-Smith, A., Skinner, M. J., and Morton, J. (1992). Situational factors and thought processes associated with unprotected intercourse in heterosexual students. AIDS Care 4, pp. 305-323.
- Goldner, T. E., Lawson, H. W., Xia, Z., and Atrash, H. K. (1993). Surveillance for ectopic pregnancy -- U.S. 1970-1989. Morbidity and Mortality Weekly Report: CDC Surveillance Summary 42(55-6), pp. 73-85.
- Grimley, D. M., Riley, G. E., Bellis, J. M., and Prochaska, J. O. (1993). Assessing the stages of change and decision-making for contraceptive use for the prevention of pregnancy, sexually transmitted diseases, and Acquired Immunodeficiency Syndrome. Health Education Quarterly 20(4), pp. 455-470.
- Grundy-Wheeler, N. J. (1991). Out of hours attendance in an army practice. British Journal of General Practice 41, pp. 210-212.
- Hanna, J. H. (1992). An analysis of gynecological problems presenting to an evacuation hospital during Operation Desert Storm. Military Medicine 157, pp. 222-224.

- Harman, E., Frykman, P., Lammi, E., and Palmer, C. (1996). "Effects of a specially designed physical conditioning program on the load carriage and lifting performance of female soldiers." Natick, MA: U.S. Army Research Institute of Environmental Medicine.
- Hawley-Bowland, C. (1996). Epidemiologic overview of common gynecologic disorders and first-trimester complications among active-duty women. Women's Health Issues 6(6), pp. 353-355.
- Hines, G. F. (1992). Ambulatory health care needs of women deployed with a heavy armor division during the Persian Gulf War. Military Medicine 157, pp. 219-221.
- Hingson, R. W., Strunin, L., Berlin, B. M., and Heeren, T. (1990). Beliefs about AIDS, use of alcohol and drugs, and unprotected sex among Massachusetts adolescents. American Journal of Public Health 80(3), pp. 295-299.
- Hoiberg, A. and White, J. F. (1992). Health status of women in the Armed Forces. Armed Forces & Society 18(4).
- Hook, E. W. and Handsfield, H. H. (1990). Gonococcal infections in the adult. In K. K. Holmes, P. A. Mardh, P. F. Sparling, P. J. Wiesner (eds.) Sexually Transmitted Diseases (2nd edition). New York: McGraw-Hill, pp. 149-165.
- Hooton, T. M., Fihn, S. D., Johnson, C., et al. (1989). Association between bacterial vaginosis and acute cystitis in women using diaphragms. Archives of Internal Medicine 149, pp. 1932-6.
- Hooton, T. M., Hillier, S., Johnson, C., et al. (1991). *Escherichia coli* bacteriuria and contraceptive method. Journal of the American Medical Association (JAMA) 265, pp. 64-69.
- Hooton, T. M., Roberts, P. L., Stamm, W. E. (1994). Effects of recent sexual activity and use of a diaphragm on the vaginal microflora. Clinical Infectious Diseases 19, pp. 274-8.
- Hooton, T. M., Scholes, D., Hughes, J. P., et al. (1996). A prospective study of risk factors for symptomatic urinary tract infection in young women. New England Journal of Medicine 335, pp. 468-74.
- House of Representatives Committee on Armed Services (1993). National Defense Authorization Act for Fiscal Year 1994, Report of the Committee on Armed Services, House of Representatives on H.R. 2401. Washington, D.C.: U.S. Government Printing Office, Report 103-200.

- Institute of Medicine, Committee on Defense Women's Health Research (1995). Recommendations for Research on the Health of Military Women. Washington, D.C.: National Academy Press.
- Irwin, D. E., Savitz, D. A., Hertz-Picciotto, I. and St. Andre, K. A. (1994). The risk of pregnancy-induced hypertension: Black and white differences in a military population. American Journal of Public Health 84(9), pp. 1508-1510.
- Jenkins, P. R. and Nannis, E. D. (1995). "Proposed HIV/STD Prevention Study for Active Duty Women." Rockville, MD: Henry M. Jackson Foundation.
- Jones, B. H., Manikowski, R., Harris, J., Dziados, J., Norton, S., Ewart, T., and Vogel, J. A. (1988). Incidence of and risk factors for injury and illness among male and female Army Basic Trainees. Natick, MA: U.S. Army Research Institute of Environmental Medicine.
- Kugler, J. P., Connell, F. A., and Henley, C. E. (1990). An evaluation of prenatal care utilization in a military health care setting. Military Medicine 155(1), pp. 33-38.
- Lawson, H. W., Atrash, H. K., Saftlas, A. S., Finch, E. L. (1989). Ectopic pregnancy in the U.S., 1970-1986. Morbidity and Mortality Weekly Report: CDC Surveillance Summary 38(2), pp. 1-10.
- Lawson, H. W., Atrash, H. K., Saftlas, A. S., Franks, A. L., Finch, E. L., Hughes, J. M. (1988). Ectopic pregnancy surveillance, U.S., 1970-1985. Morbidity and Mortality Weekly Report: CDC Surveillance Summary 37(5), pp. 9-18.
- Leigh, B. C. (1990c). Venus gets in my thinking: Drinking and female sexuality in the age of AIDS. Journal of Substance Abuse 2(2), pp. 129-145.
- Lynch, P. (1985). Condylomata acuminata (anogenital warts). Clinical Obstetrics and Gynecology 28, pp. 142-151.
- Magann, E. F. and Nolan, T. E. (1991). Pregnancy outcome in an active-duty population. Obstetrics & Gynecology 78(3), Part 1, pp. 391-393.
- Mahoney, B. S., and Wright, L. C. (1989). 1989 Department of Defense Women's Health Survey. Arlington, VA: Defense Manpower Data Center.
- Markenson, G., E. Raez, and M. Colavita (1992). Female health care during Operation Desert Storm: The Eighth Evacuation Hospital experience. Military Medicine 157, pp. 610-613.
- May, K. and Mahlmeister, L. (1990). Comprehensive Maternity Nursing (2nd edition). New York: J. B. Lippincott.

- McGrane, W. L., Toth, F. J., and Allelye, E. B. (1990). The use of interactive media for HIV/AIDS prevention in the military community. Military Medicine 155, pp. 235-240.
- Messersmith-Heroman, K., and Heroman, W. M. (1994). Pregnancy outcome in military and civilian women. Military Medicine 159, pp. 577-579.
- Moore, G. R. (1996). Reproductive hazards: Military policy implications. Women's Health Issues 6(6), pp. 363-366.
- Morris, L., Warren, C., and Aral, S. (1993). Measuring adolescent sexual behaviors and related health outcomes. Public Health Reports (supplement 1) 108, pp. 31-36.
- Mutlae, T., Creed, F., Maresh, M. and Hunt, L. (1991). Life events and low birth weight-analysis by infants preterm and small for gestational age. British Journal of Obstetrics and Gynaecology 98, pp. 166-172.
- National Cancer Institute (1990). NCI Cancer Statistics Review 1973-1987. Bethesda, MD: National Institutes of Health.
- National Center for HIV, STD and TB Prevention (1996). "The Challenge of STD prevention in the United States" (<http://cdcnac.aspensys.com/stdprev.html>).
- National Center for Health Statistics (1994). Advanced report of final mortality statistics, 1992. Monthly Vital Statistics Report 43 (6) supplement.
- National Center for Health Statistics (1991). Annual summary of births, marriages, divorces, and deaths: United States, 1990. Monthly Vital Statistics Report 39(13) pp. 14-16.
- National Institute of Allergy and Infectious Diseases (1992). Human papilloma virus and genital warts. Vaginal Infections and Vaginitis. Bethesda, MD: NIAID Office of Communications, National Institutes of Health.
- Nice, D. S., Calderon, R. L., and Hilton, S. M. (1997). "Reproductive outcome in the U.S. Navy: Experience of 33,130 hospitalized pregnancies during 1982-1992." San Diego, CA: Naval Health Research Center.
- Orndorff, G. R. (1991). Screening for Chlamydia trachomatis by the direct fluorescent antibody tests in female Navy recruits. Military Medicine 156, pp. 675-677.
- Petit, N. F. (1996). Dysfunctional uterine bleeding in active-duty women: Scope of the problem and management options. Women's Health Issues 6(6), pp. 358-361.
- Planned Parenthood Federation of America, Inc. (1997). www.plannedparenthood.org.

- Pokorski, T. L. (1992). Worksite health promotion: Rationale for military implementation. Military Medicine 157, pp. 426-430.
- Polzin, W. J., Kopelman, J. N., Brady, K., and Read, J. A. (1991). Screening for illicit drug use in a military obstetric population. Obstetrics and Gynecology 78, pp. 600-601.
- Poth, M. (1996). Forum on the health of women in the military: Executive summary. Women's Health Issues 6(6), pp. 311-314.
- Rabkin, C. S., Biggar, R. J., Melbye, M., and Curtis, R. E. (1992). Second primary cancers following anal and cervical carcinoma: Evidence of shared etiologic factor. American Journal of Epidemiology 136(1), pp. 54-58.
- Reinarman, C., and Leigh, B. C. (1987). Culture, cognition, and disinhibition: Notes on sexuality and alcohol in the age of AIDS. Contemporary Drug Problems, 14(3), pp. 435-460.
- Remis, R.S., Gurwith, M. J., Gurwith, D., et al. (1987). Risk factors for urinary tract infection. American Journal of Epidemiology 126, pp. 685-693.
- Rothberg, J. M., Bartone, P. T., Holloway, H. C., and Marlowe, D. H. (1990). Life and death in the U.S. Army. Journal of the American Medical Association 264(7), pp. 2242-2243.
- Shafer, M. and Sweet, R. (1989). Pelvic inflammatory disease in adolescent females. Pediatric Clinics of North America 36(3), pp. 513-532.
- Stars and Stripes, European Edition (1985). Support hospital handles women soldiers' needs.
- Strom, B. L., Collins, M., West, S. L., et al. (1987). Sexual activity, contraceptive use, and other risk factors for symptomatic and asymptomatic bacteriuria: A case-control study. Annals of Internal Medicine 107, pp. 816-823.
- Strunin, L., and Hingson, R. (1992). Alcohol, drugs and adolescent sexual behavior. International Journal of Addiction 27, pp. 129-146.
- U.S. Army Center for Health Promotion and Preventive Medicine & U.S. Army Research Institute of Environmental Medicine (1996). Staying Healthy in Deployment: A Female Soldier's Guide. Aberdeen Proving Ground, MD: USACHPPM.
- U.S. Army Center for Health Promotion & Preventive Medicine (1996). Sustaining Female Soldiers' Health and Performance During Deployment: Guidance for Small Unit Leaders. Aberdeen Proving Ground, MD: USACHPPM.

Wahl, C. K., and Randall, V. F. (1996). Military women as wives and mothers. Women's Health Issues 6(6), pp. 315-319.

Women's Research and Education Institute (1997). Women in the Military Statistical Update, 1996. Washington, D.C.: Women's Research and Education Institute.

Zimmerman, H. L., Potterat, J., Dukes, R., Muth, J., Zimmerman, H. P., Fogel, J., and Pratts, C. (1990). Epidemiologic differences between chlamydia and gonorrhea. American Journal of Public Health 80(11), pp. 1338-1342.

Appendix H

**Focus Group Report:
Fort Bragg**

**CD-ROM Technology to Increase Appropriate Self-Care and
Preventive Behaviors Among Army and Navy Women**

Focus Group Report for Fort Bragg

June 24-25, 1998

Submitted by:

Macro International Inc.

July 28, 1998

Table of Contents

Background	1
Strengths and Limitations of Qualitative Research	1
Methodology	2
General Findings	3
General Health	3
Pregnancy	3
Contraception	4
Genitourinary infections/Hygiene	5
Sexually Transmitted Diseases (STDs)	7
Condoms	9
Health Care	9
Health Education	12
Responses to informational material	15
Conclusions	15
Recommendations	17
Content	18
Delivery	19
Specific questions enlisted women need answered	20
Appendices	22
A. Enlisted women's screener	23
B. Clinician's screener	24
C. Moderator's guide for focus groups with enlisted women	25
D. Moderator's guide for focus groups with Army health care providers	31
E. Informational handouts reviewed at focus groups	36

CD-ROM Technology to Increase Appropriate Self-Care and Preventive Behaviors Among Army and Navy Women

Focus Group Report for Fort Bragg

June 24-25, 1998

Background

The Department of Defense (DoD) contracted with Macro International Inc. to conduct a study of enlisted women's needs for basic gynecological and reproductive health education, from the perspective of military health care providers and enlisted women themselves. Based on the results of this needs assessment, a culturally sensitive, multimedia CD-ROM and accompanying materials will be developed. This intervention will then be tested in Army and Navy medical clinics in conjunction with annual Pap test screening. As part of the needs assessment, a series of focus groups are being conducted to ensure that attitudes and beliefs related to reproductive health behavior of enlisted women are examined. A total of 8 groups with enlisted women, 4 groups with physicians, and 4 groups with nurse practitioners, physician assistants, and medical corps personnel will be conducted at two Army and two Navy installations. At each installation, one focus group will be conducted with married, enlisted women; one with single, enlisted women, one with military physicians, and one with other military providers of health care for enlisted women. This report discusses the findings of four focus groups conducted with enlisted Army women and their health care providers at Fort Bragg, N.C.

The purposes of all focus groups conducted for this project are:

- 1) To assess the most pressing reproductive and gynecological self-care education needs of enlisted women on base and in the field; and
- 2) To assess the range of current health education efforts for enlisted women.

Strengths and Limitations of Qualitative Research

Focus groups were chosen as one research method to be used in determining the reproductive education needs of enlisted Army and Navy women. Focus group research is qualitative in nature, so the results are not quantifiable. Qualitative research provides information for clarifying theories, creating hypotheses, and giving direction for future research. The results presented in this report are an objective observation of attitudes, preferences, and comments of those

participating in the focus groups. Although focus group participants were drawn from the target populations of enlisted women and their health care providers, they were not chosen on any statistical basis. Therefore, no statistical inferences should be drawn from the results of the focus groups. Findings also cannot be generalized to the target population.

Methodology

Macro International conducted four focus groups to address the needs of this project. One focus group of Army physician's assistants (P.A.s) was conducted at the Roscoe Robinson Clinic at Fort Bragg, North Carolina on June 24, 1998. Another focus group of Army physicians was conducted at the Womack Army Medical Center (WAMC) at Fort Bragg, North Carolina on June 25, 1998. Two more focus groups, one consisting of married enlisted women and one of single enlisted women, were conducted in a meeting facility near the barracks of the 82nd Airborne Division, at Fort Bragg, North Carolina, on June 25, 1998. All focus groups were held during duty hours and participants therefore received no monetary compensation for their voluntary participation in the focus groups.

Army physicians with experience treating enlisted women were recruited from WAMC. Physician's assistants (P.A.s) who had experience treating enlisted women were recruited from the Roscoe Robinson Clinic. The participants in the clinicians' focus groups were primarily white and male. One woman participated in the focus group of P.A.s and two women participated in the physicians' focus group. Most participants in the P.A. focus group had over 10 years of service in the Army, with years of service ranging from 8 to 27. Most, if not all, of the P.A.s had been deployed overseas. Participants in the physicians' focus group had, on average, fewer years of service than the P.A.s. Years of service ranged from 3 to 12. Half of the physicians had been deployed.

Both groups of enlisted women were recruited from the 82nd Airborne Division. The enlisted women's focus groups included a good mix of women of various ethnicities and from a range of geographical regions in the U.S. At least two participants in each enlisted women's focus groups were African American, at least two were Caucasian, and at least two were Hispanic. Most enlisted women participating in the focus groups had less than 6 years of service in the Army. On average, the married women had more years of service than the single women. Time in the Army (post basic training) ranged from one month to 14 years among enlisted women. Few of the enlisted women had been deployed overseas. However, all participants in the enlisted women's focus groups had field experience, since their division was deployed to the field every three months.

All focus group participants were recruited by LtC. Alan Janusciewicz, M.D., who serves at WAMC. A screener was developed at Macro International Inc. to be used as a guide by Dr. Janusciewicz for selecting focus group participants.

A moderator's guide was developed at Macro International Inc. to answer the general questions listed in the Background section of this report and to obtain other feedback that may be useful in developing an educational CD-ROM to help enlisted women care for their reproductive health. The moderator's guide was approved by the internal review board at Macro, the U.S. Army Medical Research Acquisition Activity at Fort Detrick, MD., and the head of Clinical Investigations at WAMC. All focus groups were led by a trained moderator from Macro International Inc. A project manager, who is an experienced focus group moderator from Macro International Inc., also observed the focus groups and took notes. Both focus group facilitators from Macro were female. Dr. Janusciewicz also observed the two clinician focus groups at Fort Bragg. All focus groups were audio taped.

General Findings

Below are the general findings of the four focus groups conducted at Fort Bragg for the project, "CD-ROM Technology to Increase Appropriate Self-Care and Preventive Behaviors Among Army and Navy Women." The findings are organized under the general categories of topics to be covered in the moderators' guides (see Appendices C and D).

General Health

Fitness is highly valued in the military. According to focus group participants, expectations for fitness go beyond the high requirements for enlistment and retention in the armed services. Both groups of enlisted women began their discussion by emphasizing the need for enlisted women to remain healthy in order to fulfill their mission. These women noted that enlisted women who harm their health through dieting, poor eating habits, or other means, will not perform adequately. For this reason, there is a lot of emphasis on preventive health in the military. Physicians recognized that enlisted women are very concerned about their health and will use health care services if they are available and convenient. Health care providers also pointed out that the high value the military places on health and fitness creates a certain stigma attached to illness among soldiers. This stigma may lead some soldiers to avoid going to the clinic for needed treatment, or at least keep them from doing so in a timely manner. Comments from enlisted women suggest that many commanders attach a stigma to sick call which may cause enlisted women to hesitate in getting treatment. Some women reported that whenever they went to the clinic, they were asked by their whole chain of command "What did you get a profile for?" Enlisted women also noted that they simply did not have as much time to care for their health in the military compared to when they were civilians.

Pregnancy

Comments from focus group participants provided insight into the reasons that many enlisted women become pregnant. Several participants in all focus groups felt that it was not uncommon

for an enlisted women to get pregnant in order to obtain some advantage in the military. Participants described a number of incentives for getting pregnant in the military including escaping deployment, getting out of the military, getting out of the barracks, getting the financial benefits the military offers dependent children, getting "promoted" to a desk job, or not having to meet weight requirements. Most participants agreed that women either tried to get pregnant or did not see pregnancy as a problem to be prevented because of the benefits and support the military provides for pregnant women and single parents. Physician's assistants (P.A.s) estimated that as many as one in three single, female soldiers at Fort Bragg gets pregnant. Enlisted women also indicated that they thought the pregnancy rate among soldiers was fairly high. They stated that most enlisted women feel free to get pregnant whenever they want to.

Comments from focus group participants indicated that the high rate of unintended pregnancy among enlisted women, and the incentives for getting pregnant in the military, may lead to the perception among Army personnel that enlisted women who get pregnant for any reason are trying to "milk" the system. The stigma attached to pregnancy in the military is perceived to be compounded by male NCOs who do not know how to react to pregnant women, and P.A.s who may not know how to care for pregnant soldiers. An example was given of an enlisted pregnant woman who was told to go on an 8 mile run when she was pregnant and subsequently miscarried.

Participants in several groups also mentioned enlisted women they had known or treated who did not believe they could get pregnant for various reasons (e.g. "can't get pregnant the first time"), and then got pregnant. Enlisted women told stories of women who had refused to use contraception because they did not plan to become sexually active in the military; then met someone and became pregnant. Some participants (primarily enlisted women) believed that all single, enlisted women should be on some kind of contraception, regardless of whether they were sexually active. Participants in all groups agreed that many enlisted women would benefit from a basic briefing on how pregnancy occurs and how to obtain, choose, and use contraception.

Health care providers added that many enlisted women needed to know the real costs associated with a mistimed pregnancy during military service. Too many enlisted women see only the benefits of pregnancy. Married enlisted women agreed that single women need to be more concerned about the struggle of raising children. They also mentioned that it is tough for a soldier to get back into shape and stay in good enough shape to meet the fitness requirements after a pregnancy.

Contraception

According to the clinicians, enlisted women most often use 1) oral contraceptive pills (OCPs), and 2) Depo Provera. Women who take OCPs may switch to Depo Provera before going into the field. OCPs become one more item to carry into the field, and women with hectic schedules may forget to take them. However, some women dislike the side effects of Depo Provera, such as weight gain and mood swings. Less frequently, enlisted women may also use 3) condoms, 4)

IUDs (married women -- most singles do not qualify), and 5) diaphragms to prevent pregnancy. Condoms are still seen as a male contraceptive, and women feel embarrassed picking up some in the clinic, with members of their unit observing them. NorPlant is rarely used. P.A.s reported removing NorPlant more often than they insert it. According to the P.A.s., abstinence is less common than NorPlant.

Enlisted women usually choose their method of birth control based on its convenience, their experience with it, its effectiveness, and what others used and liked. Many enlisted women, however, may be unaware of the types of contraception available and how to obtain them. Although enlisted women are supposed to receive a briefing on available options for contraception, this may not happen often. One enlisted woman reported that, in 6 years of service, she had only received one briefing in her fifth year. Women added that they were more likely to get contraceptive information before going overseas.

Most types of contraception can be prescribed at the annual exam. However, there is often a relatively long wait to get an annual exam. According to some enlisted women, health care providers may also delay in prescribing contraceptives to some women who request them for various medical reasons. Enlisted women mentioned the case of a soldier who went off birth control to get into the Army, then, once enlisted, went to the clinic to obtain Depo Provera injections. The clinician made her wait until her menses started again before giving the injections. During this waiting period the woman became pregnant and miscarried.

Genitourinary infections/Hygiene

Participants in the focus groups of enlisted women appeared most concerned about issues related to hygiene and the prevention and treatment of common genitourinary infections. Both enlisted women and their health care providers reported that vaginal infections and urinary tract infections (UTIs) are common among enlisted women. The majority of these infections were attributed to poor hygiene practices, particularly in the field.

Hygiene issues for enlisted women

Both the health care providers and the enlisted women acknowledged that conditions in the barracks and the field make proper female hygiene practices difficult if not impossible. Many of the enlisted women live in the older barracks, which have a common latrine for all soldiers. The shortage of latrines in the barracks and the need to share them with males may lead to women not having enough time to clean up after physical training. Sweating and wearing the same clothes for several days increases the risk of vaginal infections. Field conditions exacerbate this problem, since opportunities to wash and change clothes are even more limited. Many women get UTIs in the field because they do not relieve themselves regularly, and drink little water to avoid the need to urinate. In the field, the nearest latrine is often a good distance away, and field activities may not leave women enough time to go there or at least find a private spot where they can relieve

themselves and clean up. For this reason, women in the field reported "holding it in" and limiting their liquid intake so that they would not need to urinate often.

Living and working with a majority of male soldiers is clearly a factor contributing to inadequate hygiene practices among females. Because the majority of soldiers are male, facilities and materials necessary for proper female hygiene are frequently not available. Additionally, the lack of privacy and time limit the attention women can give to even the most basic hygiene practices, such as relieving themselves or washing. Some women reported that they did not take the time they needed to maintain hygiene because they felt that they needed to be "like the guys." In the field, women generally share sleeping, bathing and elimination facilities with males, and these "facilities" (often just holes in the ground) are usually not private. However, both the enlisted women and their health care providers admitted that male soldiers were generally willing to respect female soldiers' need for privacy, particularly in the field. Male soldiers were also described as helpful resources. Many enlisted women reported that male soldiers had helped them learn how to create facilities for maintaining hygiene in the field. For example, males might show females how to set up a temporary shower. The health care providers pointed out that it is in the best interest of the male soldiers to ensure that the females in their team remain healthy in the field because, if a woman is pulled out, the men could be assigned her duties in addition to their own. According to both the enlisted women and the clinicians, the commanders and regulations may create more problems for women in the field than the male soldiers. For example, commanders often expect women to relieve themselves as quickly as the men.

Several health care providers reported trying to improve the hygiene conditions for soldiers in the field. For example, one P.A. reported that a shower point had been set up in the field to help soldiers practice better hygiene. The command did not sanction this shower point, so the soldiers did not use it. Health care providers repeatedly emphasized the importance of coordinating with the command in order to make changes. Some of the health care providers thought it would be possible for the P.A.s and nurse practitioners (NPs) to coordinate with command to make sure that females have what they need to practice good hygiene and protect their health in the barracks and the field. Currently, there is nothing on the inspection list that would help women practice appropriate hygiene in the field.

There is also nothing in the kit that soldiers currently carry into the field that would help women protect their genitourinary health. According to the P.A.s, the "field kit" only includes basic items such as food, water and insect repellent. Many enlisted women pack their own "baby wipes" when they go into the field and use those to clean up after elimination, since toilet paper is often not available. When access to water is limited, women may also use the baby wipes to wash. Women also need to pack their own sanitary pads if they expect to get their periods in the field. Sometimes enlisted women will either intentionally or unintentionally forget to pack sanitary pads, and must be sent back from the field. Other items that might help women to maintain hygiene in the field, such as a shower tent, are not readily available and many women do not know where to get these items.

Prevention and treatment of genitourinary infections

Few health care services exist in the field, so vaginal infections and UTIs generally cannot be treated there. However, a medic in the enlisted women's groups reported that her team brings equipment to test for yeast infections and medicated suppositories into the field. She also reported that few women come to take advantage of the medics' services. If the infections are severe enough, women generally obtain permission to leave the field to get treatment. Other women simply "wait out" an infection until they get back home. Apparently, few systems exist for communicating to the soldiers what services are available in the field. Clinicians reported that some enlisted women try to treat infections themselves, through douching and other means that often make the infections worse. However, many enlisted women were aware that they needed to drink a lot of water or cranberry juice, keep their genital region clean, and urinate after intercourse to prevent UTIs and vaginal infections. Some enlisted women also recommended packing the Vagisil powder and using it daily to keep the vaginal area dry and reduce infections.

Health care providers most often prescribe an antifungal cream to treat vaginal infections, presumably because the majority of these infections are caused by yeast. Some enlisted women, however, reported that they had been given prescriptions that did not cure their vaginal infections, suggesting that nonfungal vaginal infections may not always get diagnosed correctly. Enlisted women also reported being dissatisfied with the 7-day cream commonly prescribed for yeast infections because it is messy, slow acting, and inconvenient (particularly in the field). Health care providers have begun prescribing pills to treat yeast infections. According to participants in the enlisted women's groups, women often need to ask directly for the "yeast infection pill," or the P.A. will automatically prescribe the 7-day cream.

Sexually Transmitted Diseases (STDs)

Both groups of enlisted women recognized chlamydia as one of the most common STDs among their peers. Perhaps because of their increased risk for STD infection, single enlisted women appeared most concerned about STD infection and mentioned more STDs than the married enlisted women. Single enlisted women believed that gonorrhea, herpes, and syphilis were relatively common at Fort Bragg. These women were also aware that the population of Fayetteville had a high rate of HIV infection and expressed some concern about soldiers getting infected from the local population.

Physicians reported that human papillomavirus (HPV) was epidemic at Fort Bragg and added that herpes and chlamydia were also common. Clinicians stated that the most common STDs among enlisted Army women were chlamydia, HPV, herpes, and gonorrhea. Physicians were particularly concerned about genital warts and HPV infection because of their relationship to cervical cancer, the silent nature of long term infection, the lack of information on this STD in women, and the inability of condoms to prevent infection.

Participants in all groups most often estimated that 30 to 40 percent of enlisted women had had an STD. These estimated STD prevalence rates are close to the lifetime STD prevalence rate among enlisted women reported in the 1995 *DoD Survey of Health Related Behaviors Among Military Personnel* (27.8%). In general, both enlisted women and their health care providers in the Fort Bragg focus groups gave relatively high estimates of the proportion of enlisted women who had ever had an STD. Some single enlisted women in the focus groups gave estimates of over 50 percent.

Participants in all focus groups agreed that a significant number of enlisted women do not worry about STD infection and engage in high risk sexual behavior. Enlisted women reported that some women enter the Army with no knowledge of STD risk factors, and these women often end up "sleeping with everyone." The enlisted women most likely to put themselves at risk for STD infection are younger or inexperienced soldiers, singles, "short timers," and those residing in the barracks. Health care providers stated in the focus groups that soldiers' behaviors were similar in many ways to those of students away at college for the first time. These clinicians concluded that soldiers' risk for STD infection was probably about the same as that of college students. Like college students, the youth and inexperience of many soldiers can lead them to feel "invulnerable," and therefore engage in risky sexual behaviors. Clinicians also noted that, because all soldiers must pass a general health exam, including an AIDS test, in order to enter the military, many females assume that male soldiers are "safe" sexual partners. Single enlisted women also stated that many women think that they cannot get an STD in the military.

Physicians' noted that many enlisted women are concerned about HIV infection but not infection with other STDs. The lack of concern about other STDs was attributed to a lack of education, a lack of coverage in the media, and the lack of symptoms in many women. Some P.A.s reported that some enlisted women were so unconcerned about infection with other STDs that they had unprotected sex with male soldiers who were known to have been treated for an STD. Physicians attributed this lack of concern to ignorance of the consequences of the less publicized STDs.

P.A.s reported that few women came to see them for STD testing or counseling. P.A.s tended to perceive enlisted women as mostly unconcerned about STD infection. On the other hand, several physicians reported that they frequently saw enlisted women with concerns about STD infection. Physicians also believed that most enlisted women are not sufficiently concerned about STDs but that many are concerned. The differences in the perceptions of the physicians and P.A.s may be explained by comments from the enlisted women participating in the focus groups. Comments from these women suggest that enlisted women may be more likely to seek STD counseling and testing through physicians at the hospital because they believe that they will have more privacy and receive higher quality care there. Therefore, physicians would be more likely than P.A.s to see women who were concerned about STD infection.

Overall, enlisted women in the focus groups appeared concerned about STD infection and had a moderate level of knowledge about STDs. These participants were able to name most of the common STDs (with the exception of HPV) and mentioned some of the consequences of these

STDs, such as infertility. Some enlisted women were also aware that women infected with STDs are often asymptomatic. Most participants in the focus groups of enlisted women agreed that women should be concerned about STDs in the military, particularly since "cheating" (multiple partners) is common. The enlisted women also noted that a soldier can get an Article 15 (formal military punishment for violation of a regulation or law) for becoming infected with an STD while in the military. A punishment under Article 15 goes on a soldier's service record.

Condoms

Condoms are available and distributed free of charge at the clinics. P.A.s reported that they encourage both women and men to take condoms. Enlisted women, however, complained that they have to ask for condoms at Robinson Clinic and that some clinicians ask women why they want the condoms.

The enlisted women were aware that sexual activity was not supposed to occur in the field and therefore did not expect to obtain condoms there. However, the enlisted women reported that sexual activity was not uncommon in the field, despite the regulations and the poor hygiene conditions. Health care providers were also aware that there was sexual activity in the field, and some wanted to dispense condoms there. Because regulations prohibit sexual activity in the field, command will generally not allow condoms to be distributed there, either during short, local exercises or long-term deployment overseas. For example, during a tour of duty in Bosnia, one P.A. noticed a higher rate of STDs among military personnel going to Budapest. This P.A. wanted to dispense condoms to the soldiers going to Budapest, but the command opposed this practice.

Enlisted women in the focus groups indicated that they were uncomfortable with obtaining and using condoms. Both married and single enlisted women reported being too embarrassed to request condoms at the clinic. They indicated that women are unlikely to pick up condoms at a clinic where other enlisted males were observing them. Single enlisted women also perceived that most soldiers prefer not to use condoms and that they do not "feel good." Other single enlisted women pointed out that people often do not think of contraception during sexual relations. Enlisted women also mentioned that some women cannot use condoms because of allergic reactions.

Health Care

Barriers to effective utilization

Participants in all four groups stated that, although female soldiers know that an annual gynecological (GYN) exam is recommended and easily available and that the annual Pap is required, many do not regularly take advantage of this service. Since there is no system in place

for tracking Paps for enlisted women, the level of adherence to the annual Pap requirement is unknown. One reason for women not getting pelvic exams and Pap tests in the past may have been the time consuming procedures for obtaining this care at Fort Bragg. Steps have recently been taken at Robinson Clinic to make the process of care seeking more efficient for soldiers. For example, an appointment system has been implemented for preventive care visits (previously, only civilian dependents could do this) and clinic hours have been extended. However, the waiting period for the annual gynecological exams is still about three weeks, although this waiting period varies between the different clinics at Fort Bragg. The waiting period generally depends on the number of providers and the proportion of females seen at a clinic. Some clinics only perform annual GYN exams one day each week. Enlisted women reported that the wait at the clinic can also be quite long.

Enlisted women may also fail to obtain annual exams or other health care in a timely manner because of a lack of trust of the military health care providers who are normally available at the clinics. Several participants in the groups of enlisted women openly voiced their lack of confidence in the quality and confidentiality of the care women receive from P.A.s at the Troop Medical Clinics (TMCs) outside of WAMC. Enlisted women at Fort Bragg are most often seen by P.A.s, most of whom are male. Many enlisted women felt that the P.A.s are not trained to handle some of the conditions they treat, particularly gynecological conditions. The women also indicated that some P.A.s were hesitant to refer a woman to a specialist when they could not diagnose her condition. Several women indicated that they would prefer to have specialists available in the clinics, such as a gynecologist. Physicians, but not P.A.s, mentioned that they were aware of the enlisted women's desire for more highly qualified health care providers. Enlisted women also stated that they would like have the option of requesting a female clinician. Some enlisted women, particularly those who have been sexually abused, may be very uncomfortable with a male health care provider.

Another concern voiced by the enlisted women in the focus groups was the fact that soldiers are seen by a different health care provider each time they go to the clinic (with the exception of pregnant women, who are assigned a physician). Apparently, this is not the case at all installations. One enlisted woman reported that, at her last duty station, soldiers had the same doctor all the time. Enlisted women said that they would prefer to have a regular provider who knows their history and therefore can provide them with more appropriate care. The lack of continuity in providers can lead to inappropriate care for enlisted women. For example, several enlisted women reported receiving multiple Pap smears over the course of one year. Other enlisted women reported being asked at each visit whether they needed a Pap test. Several enlisted women also agreed that lack of familiarity with the health care providers at the clinics makes them hesitate to obtain care there when they had a sensitive or more personal health concern. Many women said that they had or planned to obtain care at the hospital or pay for care through a civilian physician in order to assure the quality and privacy of their care.

Lack of privacy and confidentiality in care was a major concern for enlisted women. Enlisted women in both focus groups gave numerous reports of personal medical information being openly

discussed within hearing of both patients and other medical personnel at clinics. Enlisted women also reported that confidential medical information can also get out through lower level privates who have access to the medical records. For example, enlisted women reported that some males in the clinic heard about women who had yeast infections and spread the word that these women had an STD. Because of this lack of privacy, some enlisted women suggested that women refuse to speak about personal medical concerns at the clinics. They suggested that women request to see a doctor or go to another team if necessary. Reportedly, level of care differs for different teams. Women also reported that many male clinicians were not sensitive to women's need for privacy. One case was described where a clinician had found some cancerous cells on the cervix of a patient and brought a group of clinicians in to look at it. Physicians at the focus group recognized that sick call did not allow for much privacy or confidentiality with so many people being treated or waiting to be treated at the same time. Some physicians described this process a humiliating and understood why enlisted women were hesitant to discuss personal health concerns with so many men listening.

Enlisted women added that, in spite of the frequent sharing of their medical information with other personnel, clinicians were frequently hesitant to provide the women with a complete explanation of their own medical problems. For example, an enlisted woman had been diagnosed with cervical cancer, but she said that no one would talk to her about her illness. Enlisted women suggested that a woman who was not receiving necessary medical information or who was otherwise dissatisfied with her care should complain to the Officer-in-Charge (OIC).

Despite the numerous barriers to women obtaining health care in the military, physicians estimated utilization rates of health care services by enlisted women to be roughly two times that of civilians. Most clinicians attributed higher utilization rates to the free care provided to enlisted personnel rather than the quality of that care.

Provider practices

Statements from all focus groups suggested that many health care providers are trying to test enlisted women for pregnancy and STDs whenever possible. Most enlisted women reported that they had undergone several pelvic exams and had been tested for pregnancy. Some enlisted women reported that they had been tested for pregnancy even when their visit to the clinic was not for a gynecological problem (e.g. an injury). The physicians reported that they frequently screened women for certain STDs.

Health care prior to and during deployment may differ markedly from standard care for enlisted women. For example, enlisted women stated that "real doctors" from the Army Reserves gave women their predeployment exams. However, not all soldiers get a predeployment exam.

Health Education

In the military

The general consensus of participants in all focus groups was that some reproductive health education has been given to enlisted women at Fort Bragg, but it is minimal, not systematized, and often informal (e.g. team leaders may give some general "advice" to new soldiers regarding their sexual behavior). Both clinicians and enlisted women stated that health education in the military is inadequate, particularly on the topics of STDs and pregnancy. Soldiers are required to receive health "briefings" within a month of arrival at the base (for basic training or permanent duty); but what comprises these "briefings" varies. Health briefings are usually given either by a community health nurse or a designated unit representative. Enlisted women reported that briefings and other reproductive health education given at the hospital are better. Enlisted women also reported that health classes are offered every six months. These classes were not mentioned by the health care providers in the focus groups, because they may not deliver them. The reproductive health education classes given during basic training are usually delivered by drill sergeants with minimal medical training. Most enlisted women had taken some reproductive health classes during basic training. Focus group participants described these classes as cursory lectures emphasizing abstinence or out-dated videos depicting STDs, more often in males. Both the health care providers and the enlisted women felt that these basic-training "classes" were fairly ineffective.

Information on condoms, STDs, and birth control is available at the clinics, often in the form of pamphlets. At WAMC, each department has its own set of handouts. The OB-GYN department distributes handouts published by the American College of Obstetricians and Gynecologists (ACOG). Family Practice has handouts produced by different organizations. According to the physicians, informational handouts at WAMC are available through the clinicians only. One local nonmilitary clinic reportedly has a spot set up by a community health nurse where enlisted personnel can pick up their own information. There is also a health kiosk at WAMC, but it reportedly takes about 20 minutes to get on-line. There is also a telephone help-line, but the time callers are put on hold can be very long. Participants in all focus groups indicated that peers were the primary source of reproductive health information for enlisted women. Other sources of health information reported by enlisted women included books, television and trial-and-error experience.

Health education needs in the military

Several comments from focus group participants suggested that the system for disseminating information on services and resources available to enlisted women is fairly ineffective. Participants indicated that there is a lack of knowledge and communication about the services, equipment, supplies, and other support available to help enlisted women maintain their reproductive health, particularly in the field. In the enlisted women's focus groups, more experienced soldiers described services and supplies that were available in the field of which other

participants were not aware. One medic mentioned that her team always brought suppositories to treat yeast infections into the field, yet all other participants were unaware that there was any treatment available for vaginal infections in the field. Another enlisted woman mentioned that she had learned from the males how to set up a shower tent in the field. Most women in the focus groups reported that women could not get a private shower in the field and, as a result, often did not shower while in the field. Enlisted women said that it was very difficult to obtain the information they needed to protect their reproductive health because they had to ask several people before getting to a person who could help them. The process of going through so many people to deal with a specific health concern also made it nearly impossible to maintain confidentiality.

Another concern that was brought up by participants in both groups of health care providers was the need for reproductive health education "at the lower levels," that is, either prior to or during basic training. One physician reported that he was conducting a reproductive health education program at a local junior high school. He suggested that the military's support of these early health education programs would be the most effective way to reduce unintended pregnancy and STD infection of future recruits. Several participants also indicated that basic training provided a good opportunity to provide reproductive health education to all enlisted women since that is their introduction to the military as well as their first field experience. Some enlisted women also suggested that health education for soldiers be part of the recruiting process so that women will know what impact military service may have on their health, such as how field duty affects hygiene.

Health care providers repeatedly brought up the fact that delivering reproductive health care counseling or education at any point would be very difficult without strong support from the chain of command. They noted that most commanders are not motivated to make reproductive health counseling and education readily available to enlisted women. In order to motivate commanders to make reproductive health education widely available to enlisted women, such education would need to become a requirement at the unit level, like dental care. In order to maintain support of the command, a mechanism would also need to be in place to make reproductive health education a reportable statistic.

There is a possibility that the Army's chain of command will not support a health education intervention exclusively for females. For example, the attached U.S. Army publication, "Staying Healthy in Deployment: A Female Soldier's Guide" has already been discontinued because it does not apply to male soldiers. Participants in all four focus groups also indicated that any reproductive health education intervention should be developed to be used by both males and females in the armed services. Clinicians emphasized that soldiers of both genders need to maintain their overall health in order to perform their duties, and that the males need education about reproductive health as much as the females. Additionally, soldiers of both genders may perceive that it is unfair to require women to receive reproductive health education that their male colleagues do not receive. The women in the focus groups stated that they would resent a requirement to receive additional education while males got free time. Clinicians added that men

may also resent the fact that they do not receive the same level of reproductive health education as the women.

Although enlisted women in the focus groups indicated that they would like the option of receiving reproductive health education privately or without the males being present, they also said that the males would benefit from receiving the same education. Both clinicians and enlisted women made comments suggesting that there are several actions males can take to help females maintain their health in the field and barracks. According to focus group participants, enlisted men want to help enlisted women protect their health so that women can perform their duties. If a female soldier is removed from duty or is unproductive, some her duties may fall to the male soldiers to complete. Enlisted women also pointed out that men do not understand their unique health problems and often accuse them of "whining" or trying to get out of duty when they have legitimate health problems.

Several participants across groups also noted that any educational intervention designed to prevent STDs and unintended pregnancy must target males as well as females, since males are at least 50 percent of the problem. For example, comments from enlisted women and their clinicians clearly indicated that males are much more likely to obtain condoms at the TMC than are enlisted women. Reproductive health education for male soldiers should highlight the risks and consequences enlisted men experience with regard to STD infection and mistimed pregnancy.

Reproductive health counseling

Overall, reproductive health counseling for enlisted women at Fort Bragg appears to be rare. Health care providers indicated that women were supposed to receive some education during the required, annual "well woman" exam but this seldom happened due to time constraints. At the annual exam, enlisted women are given a pre-printed questionnaire which asks some reproductive health questions (e.g. "Have you had any problems with your current method of birth control?"). However, women often fail to complete the questionnaire, and clinicians often do not have time to discuss the women's responses on the questionnaire when they do complete it. Clinicians admitted that many health care providers do not or cannot take the time to provide a woman with detailed information unless a problem comes up. Enlisted women said that they needed to make an appointment to get counseling. In general, enlisted women must proactively seek counseling and information, at least by asking questions of their health care providers.

Enlisted women's comments suggested that, although real counseling is rare, it is not uncommon for clinicians to ask women about their sexual behavior. The women reported that clinicians often asked them whether they might be pregnant. Some clinicians also asked them whether they had multiple partners. One married soldier said that a clinician had asked "Do you have more than one partner? Are you sure?" The enlisted women agreed that questioning of this nature made them feel that their integrity was being questioned. Enlisted women in both groups made comments indicating that they were weary of both their clinicians and their superiors questioning them about pregnancy and sexual behavior.

Responses to informational material

Focus group participants were asked to review two handouts produced specifically to provide reproductive health information to enlisted women. One was a newsletter produced by the Naval Medical Clinic in New Orleans in 1996. The other handout was the publication "Staying Healthy in Deployment: A Female Soldier's Guide" produced by the U.S. Army Center for Health Promotion and Preventive Medicine and the U.S. Army Research Institute of Environmental Medicine in October, 1996 (see Appendix E for copies of these handouts). Enlisted women responded that they had not seen any of these materials before. They also thought that the handouts were more comprehensive than other reproductive health education materials they had seen to date. They agreed that most of what was covered in the focus group discussion was covered in these handouts.

Conclusions

Most focus group participants at Fort Bragg agreed that there is an unmet need for basic reproductive health education for enlisted women. Education on preventive health is especially critical because of the high value placed on fitness in the military. Participants in the focus groups of enlisted women and their military health care providers agreed that there are several gaps in the education soldiers receive on STD and pregnancy prevention as well as ways to maintain hygiene and prevent genitourinary infections.

Education is needed to prevent pregnancies that interfere with mission of all soldiers. However, because there are so many incentives and other factors that may put enlisted women at greater risk for mistimed pregnancies, effective pregnancy-prevention education may be difficult. Focus group participants agreed that the most effective approach may be to emphasize the drawbacks of pregnancy in the military via "real-life" testimonials, stories, statistics, and decision games.

Basic education on contraception is also needed to help enlisted women prevent unwanted pregnancies. Contraception is widely available in the military; but little contraceptive information is available. Enlisted women need to know about their contraceptive options, the risks and benefits of each option, how to obtain the contraception they need, and how to deal with the potential side effects of contraceptives.

Although the enlisted women were very concerned about pregnancy, they tended to talk more about issues of basic hygiene and the conditions women experience as a result of poor hygiene. Participants in the focus groups of enlisted women may have been most interested in the topics of hygiene and genitourinary infections because these are issues that almost all enlisted women deal with on a regular basis. According to focus group participants, enlisted women are frequently unable to practice good hygiene because of conditions in the field and in the barracks. Working and living in close quarters with a majority of males decreases women's access to the resources

they need to maintain good feminine hygiene (e.g. time, privacy, materials). As a result, enlisted women experience a high rate of genitourinary infections. According to the enlisted women in the focus groups, information on the prevention and treatment of female genitourinary infections in a military environment is not readily available.

According to focus group participants, genitourinary infections in enlisted women often create a lot of concern because enlisted women, their commanders, and male soldiers fear that they may have been sexually transmitted. Sexually transmitted disease (STD) is clearly a major concern in the military and is viewed as relatively common among soldiers. Participants in both clinician and enlisted women focus groups estimated the prevalence of STD infection among enlisted women to be slightly higher than recent data have shown. Participants in all focus groups were aware of many STDs common among enlisted women. All groups mentioned that chlamydia was common among enlisted women. Interestingly, the one STD enlisted women failed to mention was HPV. Conversely, clinicians stated that HPV infection was "epidemic" and gave some indication that they may be over screening for this STD. Clinicians and enlisted women in the focus groups agreed that most enlisted women are not sufficiently concerned about STD infection. In particular, young and inexperienced enlisted women reportedly were likely to engage in high risk sexual behaviors because of their ignorance of the risks and consequences of STDs other than HIV (for which all soldiers are tested). Comments across focus groups also suggested that use of condoms by female soldiers was relatively rare, perhaps due to lack of ready and confidential access to condoms in the military.

During discussions of all focus group topics (pregnancy, STDs, hygiene and genitourinary infections) participants repeatedly brought up issues of health care delivery in the military. Reports from all focus groups indicated that clinicians frequently conduct Pap tests and screen enlisted women for pregnancy and STD infection. However, several barriers to enlisted women receiving preventive care and treatment were described by focus group participants. These barriers included:

- ▶ Lack of time on the part of both the health care providers and enlisted women to deliver and obtain health care
- ▶ Long waits for appointments and in the waiting area
- ▶ Lack of privacy during sick call
- ▶ Lack of confidentiality of personal medical information
- ▶ Lack of continuity in care because a different clinician is seen each time
- ▶ Poor patient/provider communication (e.g. women are not given a full explanation of what is wrong with them)

According to focus group participants, many of the barriers to obtaining health care in the military also interfere with enlisted women obtaining information they need to protect their reproductive health. Participants report that little time is allotted for educating soldiers about their reproductive health -- they generally receive a class in basic training and one briefing at Fort Bragg. Clinicians report that they do not have time to educate soldiers during visits to the clinic.

Enlisted women also say that they have little time to seek information on their reproductive health; and the sources available at Fort Bragg are time consuming to access (e.g. the kiosk takes 20 minutes to log on, the phone line puts you on hold, obtaining written information or counseling requires an appointment). According to participants in the focus groups of enlisted women, lack of privacy and trust that their personal information will remain confidential keeps many enlisted women from seeking information on their reproductive health from either their clinicians or commanders. They also report that commanders and clinicians are frequently unwilling or unable to provide them with the information they need. Additionally, because these enlisted women do not have a regular health care provider, they are not likely to receive or be referred for individual counseling on their reproductive health unless they take the initiative to do so. Focus group participants report that most enlisted women do not take the initiative to obtain accurate information on their reproductive health. They are more likely to rely on peers, the media, and their own experience to make decisions that affect their reproductive health.

Overall, findings from the Fort Bragg focus groups indicated that enlisted women would benefit from a computer-based reproductive health education intervention if it could be made accessible to all soldiers in a private setting. Participants indicated that, to their knowledge, CD-ROM based materials had not been used to deliver reproductive health education to Army personnel. Comments from participants suggested that this type of health education intervention would be useful to soldiers if the materials were adaptable to the user, and use of the CD-ROM was not too time consuming. Participants in the clinician's focus groups emphasized that command support would be critical to making any health education intervention available to the soldiers. Participants also recommended that the intervention be mandatory to ensure that the soldiers used it; and to avoid the stigma that might be attached to a soldier accessing information on reproductive health issues. Findings from the focus groups also indicated that enlisted women need a mechanism for obtaining reproductive health information that is current and tailored to their installation or even their platoon. These findings suggest the need for an educational intervention in which the information can be 1) tailored to the user's input, and 2) updated regularly.

Recommendations

Below is a detailed list of recommendations for developing a interactive, computer-based materials to educate enlisted women about their reproductive health. Recommendations were either offered by focus group participants or developed based on comments made by focus group participants. The first set of recommendations deals with content for the intervention. The second set of recommendations deals with the delivery of the intervention. This section concludes with a list of questions that should addressed by the intervention.

Content

General format

- ▶ All material should be interesting, relevant, in-depth, and up-to-date.
- ▶ Make the intervention fun by putting the educational activities in a game format.
- ▶ Include quizzes or some other mechanism to allow them to check their basic knowledge, understanding of "lessons", and progress.
- ▶ Use case studies, case reports, stories, and scenarios to illustrate educational points.
- ▶ Include a menu of questions (see "Specific questions enlisted women need answered" below.)
- ▶ Some mechanism for tracking the number or type of users (even which modules are used) might be useful for evaluating the educational intervention and reporting on its utility.
- ▶ If possible, the educational intervention should be extended to or adapted for male soldiers and commanders of enlisted women (officers). The behaviors of both of these groups impact the reproductive health of enlisted women and they need to know the repercussions of their actions. Further, soldiers will not perceive that it is fair to have an intervention that women must see, but that does not apply to men.
- ▶ It would be useful to include content that can be tailored to the user based on service, age, job, marital status, ethnicity, etc.
- ▶ Military terminology should be used in writing the content.
- ▶ Some good information, videos, and graphics are available in the military which could be included in the CD-ROM. For example, include the "What to Expect When You're Expecting" module. Clips from the STD video in the USUHS library might also be included.
- ▶ Because of the limited access most enlisted personnel have to computers, creating a program that could produce brochures or slides, or be adapted to a videotape format would be useful. Clinicians want something they can use to educate a group of soldiers at one time. Women want something they can take home.

General women's health content

- ▶ Include information on basic female physiology.
- ▶ Include basic education on recognizing symptoms of UTIs, vaginal infections, STDs, and pregnancy; and on how to react to those symptoms.
- ▶ Include information on causes of vaginal infections, UTIs, and the various STDs; then educate on their prevention and treatment.
- ▶ Include stories or testimonials on the real consequences and costs of reproductive health problems. Participants indicated that personalized, "real" information would have a greater impact.
- ▶ Instruct women on how to ask about diagnoses and treatment options.
- ▶ Emphasize the importance of the annual "well woman" exam.
- ▶ Include a directory of information resources for enlisted women to find out how to deal with their unique reproductive health concerns.
- ▶ Deal with concerns about confidentiality of treatment (e.g. alternatives, advice from

- ▶ experienced female soldiers, your rights in the military)
- ▶ Provide practical suggestions for preventing STDs and pregnancy that go beyond contraception (e.g. communication, safe dating practices, etc.)

Specific pregnancy and contraception content

- ▶ Include a section on birth control alternatives, their effectiveness, risks, benefits, etc.
- ▶ Include instruction on normal vs. abnormal pregnancy and how to treat.
- ▶ Include “real-life” stories of women who have experienced pregnancy in the military with an emphasis on costs (e.g. being separated from children for long periods during deployment, struggles with obtaining reliable child care during deployment and duty, women experiencing pregnancy complications, weight gain, etc.)

Hygiene and genitourinary infections

- ▶ Provide tips (perhaps from experienced soldiers, health care providers, and commanders) for maintaining hygiene on base and in the field (e.g. “Here’s what you may encounter, here’s how to deal with it”). During the focus groups, enlisted women proved to be valuable sources of information for each other. Peer information sources should be drawn upon more effectively.
- ▶ Recommend items, medications, etc. to use in the field.

Sexually transmitted diseases

- ▶ Emphasize the importance of using condoms alone or with other contraception to prevent STD infection.
- ▶ Let women know that they will get a lot of attention from males because they are the minority in the military. Teach them strategies for handling this attention and avoiding risky sexual behavior.
- ▶ Include “real life stories” of enlisted women and men who were infected with STDs and treated.
- ▶ Also include prevalence data (perhaps from the local clinic on base) or at least pictures of the waiting line for the “STD clinic”, to give users the sense that infection is common.

Delivery

Who?

- ▶ Enlisted women may be more responsive to reproductive health information delivered by a friend or peer rather than a health care provider.
- ▶ Small group leaders may be the best people to deliver reproductive health education, but they need to learn how to deliver the education without judging or lecturing.

When?

- ▶ Educate soldiers as early as possible. Provide reproductive health education during basic training or before. Health education during basic should not be delivered by drill sergeants.
- ▶ Reproductive self-care and prevention education should be provided at several points by a team of trained individuals who work closely with enlisted women. This team may include P.A.s, team leaders, commanders, etc. The education provided by each individual at each point should match. In other words, a consistent curriculum should be developed and delivered at different points, through different personnel.
- ▶ One way to deal with the embarrassment of having others know that a woman is using this intervention is to make it part of an annual review or exam, so that everyone has to view it.
- ▶ Another way to ensure universal access and use, overcome fears of being singled out for using the "STD computer," and ensure early education prior to entry into service is to make the intervention available during processing.

Where?

- ▶ Education must be delivered in a manner that ensures confidentiality and privacy while being available to all enlisted personnel. Women do not want to use this type of intervention in front of others (e.g. at a TMC).
- ▶ Many enlisted personnel do not have regular access to a computer. Therefore, a computer should either be set up at the clinic or the CD-ROM should be installed in the library. At the library, women could sign out the CD-ROM.

How (what will it take to deliver?)

- ▶ Education and support of the chain of command is critical to implementing any reproductive health education intervention for enlisted women.
- ▶ Make the use of the intervention mandatory to ensure that soldiers use it and no one is "singled out."

Specific questions enlisted women need answered

About general women's health

- ▶ What reproductive health problems might I experience in the military (e.g. field exercises, barracks living, deployment, basic training)?
- ▶ How can I deal with these health problems in the various settings?
- ▶ What are my options if I have reproductive health problems in the field (e.g. breakthrough bleeding, cramps, vaginal infections, UTIs)?
- ▶ (When anatomical pictures are used) What body part is this and what does it do?
- ▶ What chemicals may affect my reproductive health? How?
- ▶ What happens during a pelvic exam?
- ▶ Why am I getting a Pap smear?
- ▶ What is a Pap smear?

- ▶ What is normal menstruation?
- ▶ What causes breakthrough bleeding?
- ▶ What are the risk factors for cervical cancer?

About pregnancy and contraception

- ▶ How do I get pregnant?
- ▶ How do I know I am pregnant?
- ▶ What regulations may impact my pregnancy?
- ▶ What should I do if I suspect I might be pregnant?
- ▶ What impact could pregnancy have on my military career/service?
- ▶ How can I ensure that I have a healthy baby while in the military?
- ▶ What impact could military service have on my pregnancy/baby?
- ▶ What chemicals may affect the health of my baby during pregnancy? How?
- ▶ What is infertility?
- ▶ What causes infertility?
- ▶ What can one do about infertility?
- ▶ What are my contraceptive options?
- ▶ How do I choose effective contraception that works for me?
- ▶ What can I use in the field for birth control?

About hygiene and genitourinary infections

- ▶ How can I practice good hygiene? In the barracks? In the field? During deployment?
- ▶ What do I need to take into the field to maintain hygiene and genitourinary health?
- ▶ How do I get the items I need in the field to maintain good hygiene and health?
- ▶ What are the different types of genitourinary infections?
- ▶ What causes them?
- ▶ How are they treated?
- ▶ What makes them worse?
- ▶ How can genitourinary infections be treated in the field?

About sexually transmitted diseases (STDs)

- ▶ What STDs can women get?
- ▶ How do women get these STDs?
- ▶ How do I know I have one of these STDs?
- ▶ What are the consequences of having each type of STD infection?
- ▶ How likely am I to get or have an STD (based on my sexual practices)?
- ▶ How do I know if my partner has an STD?
- ▶ How can I protect myself from STD infection?
- ▶ What should I do if I think I might have been infected?
- ▶ How can STDs be treated?